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**TITLE:** Spouse READI (Resilience Education and Deployment Information): Randomized Clinical Trial Formerly Reintegration: The Role of Spouse Telephone BATTLEMIND Randomized Clinical Trial

**PRINCIPAL INVESTIGATOR:** Linda O. Nichols, Ph.D.

**CONTRACTING ORGANIZATION:** Research Inc. VAMC (151)  
Memphis, TN 38104

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<b>14. ABSTRACT</b> This randomized clinical trial of spouses coping with reintegration of the service member post deployment enrolled 228 spouses/significant others Active Duty/National Guard/Reserve service members who had served in Iraq or Afghanistan, approximately 76 in each study arm. For the main intervention arm, each telephone support group met 12 times during six months. For the attention control arm, online/telephone education webinars also met 12 times during six months. A Participant Workbook including comprehensive materials for all sessions and topics, other resources, and red flag resources was provided to these two groups. For the usual care arm, at the end of their participation, participants were offered a telephone workshop focusing on the components covered in the telephone groups and received the Participant Workbook. Outcomes included depression and anxiety symptoms, resilience, personal/family coping, and communication. Data were collected by telephone, at baseline, 6, and 12 months with outcomes only collected at 3 and 9 months. Participant satisfaction and benefit was measured with a qualitative project evaluation. Participants in all three study arms improved. These improvements occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return. Participants in all study arms attributed benefit to improved self-efficacy. Support participants cited self-reflection, skills building, support of other group members, and resources available to them. Education participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building, or support of others, usual care participants highlighted how the assessment battery had made them question and modify their thoughts and behaviors.				
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## **Introduction**

It is impossible to consider the service member separately from the military family unit; there are effects of the war on families as well as the service member (Basham, 2013; MacDermid Wadsworth, 2013). Family stressors, strain, and resources are important for military spouses' psychological health (Green, Nurius & Lester, 2013). Deployment effects on the military spouse include increased loneliness, anxiety, depression, sleep disorders, adjustment disorders and stress, and family dysfunction (Link & Palinkas, 2013; Mansfield et al., 2010). Although rates are generally similar to those of service members (Eaton et al., 2008), spouses are almost four times more likely than service members (21.7% vs. 6.2%) to report that stress or emotional problems impact their work or other activities (Hoge, Castro, & Eaton, 2006).

Caregivers with higher levels of depression, anxiety, or any physical health problems increase the chance of subsequent injuries to the patient (Carlson et al. 2012). Service members returning with TBI make less progress in treatment if the family unit is distressed (Dausch & Saliman, 2009). Conversely, post traumatic stress disorder (PTSD) symptoms often decrease as family and social support increases (Frain, Bethel, & Bishop, 2010). Providing education and mental health resources to families can help reduce caregiver burden which in turn positively affects the health of the care recipient (Bernhardt, 2009; Monson, Taft, & Fredman, 2009).

This study tested telephone-based strategies to assist spouses of returning post 9/11 service members who served in Iraq (Operation Iraqi Freedom – OIF and Operation New Dawn - OND) and Afghanistan (Operation Enduring Freedom – OEF). The goal was to build spouses' resilience to cope with reintegration challenges, help them serve as a support system for service members, and ease the transition for families post-deployment. The study compared telephone support groups to education webinars and to usual care. The study enrolled 228 spouses. In the Telephone Support groups, a group facilitator and participants focused on education, skills building and support. Education Only webinars, which served as attention control, provided the same education content, without skills building or support. Each group met 12 times over 6 months. Content included ways returning service member, spouse and family may have changed during deployment; negotiation; strategies to reduce or eliminate reintegration difficulties; strategies to support the service member; and cues to alert spouses when to seek mental health services for family or self. Usual Care participants were offered a workshop focusing on the same topics after participation.

The goal of the study was to determine whether spouses of returning service members could be helped to cope with their own concerns after their partner's return from deployment and to serve as a support system for the partner. We hypothesized that the telephone support group arm, compared to education webinars and usual care, would be more effective in improving spouse outcomes, including depression, anxiety, resilience, personal/family coping strategies, and family problem-solving communication. We further hypothesized that the education webinar study arm, compared to usual care, would be more effective in improving outcomes.

## **Administrative Issues**

A no cost extension was applied for and granted to facilitate preparation and dissemination of results.

## **Body**

### **Task 1: Develop Manual of Operations (MOP)** 2010

Months 1-7, October, 2009-April

Products for Task 1: Completed Manual of Operations (support group format, topics and scripts, participant workbooks and welcome packs, education group format, topics and scripts, screening forms and scripts, data collection forms, scripts and documentation, brochures and posters

### **Task 2: IRB approval** 2010

Months 1-8, October, 2009-May

Product for Task 2: Approved consents and amendments

### **Task 3: Hire and train personnel**

Months 1-5, October, 2009-February 2010.

Staff working with the project included a project manager, two group leaders, research data associates, a data analyst, and a statistician. During the course of the study, several University of Memphis Psychology graduate students worked with the project. Staff who have received pay during the study period include co-investigators Dr. Jennifer Martindale-Adams, Dr. Robert Burns, and Dr. Marshall Graney; group leaders Denise Brown, Jessica Roxy Martin, and Lauren Martin; research associates Celeste Bursi, Carolyn Clark, Karsten Everett, Barbara Higgins, Pat Miller, and Sylvia Zuber; data analyst Jeff Zuber, and graduate students Katherine Bracken-Minor, Amy Farrell, Jordan Fields, and Francisco Salgado-Garcia.

Product for Task 3: Trained and certified staff

### **Task 4: Recruitment and Randomization**

**Months 8-39, May 2010-December 2012.**

READI participants were spouses or significant others of a service member/veteran who participated in OEF/OIF/OND and was at least 1 month post-deployment; had been a spouse throughout the recent deployment period; and lived with the service member/veteran when not deployed. Recruitment goals were met with 228 spouses, approximately 75 in each arm, enrolled in three ongoing telephone support groups and three ongoing education webinars. At baseline there were no statistically significant differences among the three randomization arms. On average, participants were women, in their mid 30s, married around 9 years, with about 2 children. They were mostly white, with about 12% each being African American or Latina. They had, on average, about 3 years of college, and a little more than half were employed. Clinically, spouses reported health between good and very good, and relatively low depression or anxiety. On average, spouses reported that it had taken 3.4 months to adjust to the service member's return. However, 42.4% reported that they had not yet adjusted to the service member's return. In addition, they reported that time for the relationship to adjust had been 4.3 months and 46.8% felt their relationship had not yet adjusted to the service member's return.

Service members, on average, were in their late 30s and 75% were employed. Very few were junior enlisted, almost 2/3 were non-commissioned officers. Service members had served in the military 14 years, and 44.5% were currently Guard or Reserve. Consistent with their years in the military, they had 3.6 total deployments, with 2.1 OEF/OIF/OND deployments. On average, the most recent deployment had been almost a year long. Almost 2/3 had been injured and 43.6% met criteria for PTSD based on spouse report. Service members took 4.5 months to adjust to return and 46.8% by spouse report had not yet adjusted, although they had been back almost two years.

Among support arm participants, 40.8% participated in six or more of the twelve sessions and 21% participated in no sessions. Among education arm participants, only 34.2% participated in six or more sessions and 30.3% participated in no sessions. The discontinuation and lost to follow-up rate was also high for the education arm, with 24 participants discontinuing or being lost to follow-up, compared to ten participants in the support arm and four in the usual care arm. The number of sessions missed might have been higher if not for the support arm ability to move between groups; 29 (38.2%) of the 75 participants attended another group at least once.

Product for Task 4: 228 participants recruited

- Tables in manuscripts in Appendix

### **Task 5: Intervention (Telephone Groups)**

**Months 8-45, May 2010-June 2013**

The telephone support groups were designed to have 6 members and a trained Group Leader, who was an experienced counselor. Groups met twice a month for six months. Groups were pre-scheduled on three different nights and at pre-determined times based on times that spouses were available and an acknowledgement that participants' schedules often change due to family, work and school schedules. Groups were open and ongoing and participants could enter at any session. Participants were encouraged to stay with the same group, but had the option to join another group if their schedule changed or to make up a missed session.

Because telephone support groups are not face-to-face, they may have a lack of interpersonal verbal and physical cues. To help with this potential difficulty, the support group leader was trained and certified in directing groups that lack face-to-face interaction. Group rules such as having group members identify themselves when speaking and give clear feedback also helped encourage interaction and a sense of camaraderie.

The one hour telephone support sessions included strategies and skills that have been successful in caregiving interventions, including education, training in and practice of coping skills (e.g., problem solving, communication) and cognitive restructuring (identifying and re-shaping negative and destructive thoughts), and support (Belle et al., 2006; Gottman, Gottman, & Atkins, 2011, Schulz et al., 2003). Learning and practice of new practical coping skills to help participants normalize their experiences in a safe environment was an important part of this program. At each session, participants were encouraged to develop a concrete, defined, strategy related to the topic and to write down the coping strategy they would try (commitment) (Najavits, 2002). The telephone groups had a structured format with scripted talking points, but were also participant-centered to incorporate participant input and direction of discussion.

Each participant had a one-on-one introduction call that focused on group logistics and rules (e.g., identify yourself when you speak, do not identify individuals you are speaking about) and the basics of problem solving. An ending one-on-one call included a topic review and lessons learned for the spouse. Group session topics included social support, communicating, emotional intimacy, family roles, commitment, mental health and resilience, asking for help from the community and others, navigating the system, strengthening your relationship, taking care of you, and Traumatic Brain Injury (TBI) and PTSD. Each group session had a similar format with a review of member commitments from the previous sessions, a brief didactic presentation followed by member discussion of the topic, coping skills practice during the session, and commitments to try at least one skill between sessions.

A Participant Workbook provided materials for each session and additional resource material expanding on the topic plus “red flags” for spouse or service member – areas that may exacerbate problems, add difficulty or distress, and/or indicate a need for referrals (e.g., unsafe behaviors, substance abuse, spouse abuse, PTSD, depression, TBI).

Product for Task 5: Telephone Support groups completed

Spouse Workbook available upon request

**Task 6: Attention Control (Webinar Groups)** Months 8-45, May 2010-June 2013

The attention control arm included 12 half-hour-long education webinar sessions during six months. Each participant received the Participant Workbook. The topics were the same as those covered in the intervention arm. However, there was no spouse interaction/support (i.e., participants could listen but not interact with each other) or active skills building components. Sessions were recorded so that spouses could be sent links to watch if they missed a session.

Product for Task 6: Education Webinar groups completed

**Task 7: Data Collection/Data Entry/Cleaning** Months 8-52, May 2010-January 2014

Quantitative data collection, by telephone by trained and certified research associates using standardized measures, occurred at baseline, 6 and 12 months (full), and 3 and 6 months (outcomes). Response cards were sent to participants beforehand to assist in data collection. Qualitative data included Group Leader notes charting progress for each group member and commitments for group members. Perceived participant benefit, collected at final follow-up, measured satisfaction, usefulness, relevance, and type of benefit. No data were collected from the service member.

**Data.** Outcomes included anxiety, depression, resilience, personal/family coping, and family communication. Independent measures were selected to characterize the study sample and to assess factors that have potential to affect the outcome measures and/or the reintegration process. Complete information on data measures is included in the published papers in the Appendix.

Anxiety	Generalized Anxiety Disorder-7 (GAD-7)	Spitzer, Kroenke, Williams, & Löwe, 2006 Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007
Depression	Patient Health Questionnaire (PHQ-9)	Kroenke, Spitzer, & Williams, 2001
Resilience	Connor-Davidson Resilience Scale (CD-RISC)	Connor & Davidson, 2003
Personal/Family Coping	1991-1992 Survey of Army Families II in USAR-EUR	Pittman, Kerpelman, & McFadyen, 2004 Durand, Larison, & Rosenberg, 1995
Communication	Family Problem Solving Communication scale (FPSC)	McCubbin et al., 1996
Demographics	name; DOB; gender; race/ethnicity; years married; employment; number of people in household, ages and	

	relationships; income; and service member's branch of service, DOB, rank, and previous deployments	
Health Status	General health scale	Ware et al., 1995
Health Services	support group, counseling (individual, couples, family, pastoral), drug/alcohol treatment, depression or anxiety medication, online education/support	
Marital Quality	Quality of Marriage Index (QMI)	Norton, 1983 Heyman, Sayers, & Bellack, 1994
Personal/Family Stress	Social Readjustment Rating Scale (SRRS)	Holmes & Rahe, 1967
Military Life Stress	Navy & Marine Stress of Life Index	Millennium Cohort Study
Spouse Perceptions Of PTSD Symptoms	Partner PTSD Checklist (PCL-P)	Gallagher, Riggs, Byrne, & Weathers, 1998 Weathers, Litz, Herman, Huska, & Keane, 1993
Social Support	Multidimensional Scale of Perceived Social Support	Zimet, Dahlem, Zimet, & Farley, 1988 Dahlen, Zimet & Walker, 1991
Concerns about time with friends, roles and responsibilities, service member's drug and alcohol use, resistance to getting help by the service member, and frustration at finding resources	Potential reintegration concerns	Riviere et al., 2007

Products for Task 7: Completed data collection and data entry

#### **Task 8: Usual Care Group Workshops**

**Months 20-52, May 2011- January 2014**

Usual Care participants did not receive any contact during the study period, except for data collection and any alert calls, which were follow ups if data collection identified dangerous findings such as suicidal or homicidal ideation, suspected or admitted domestic abuse, increased alcohol/drug use, clinical depression levels, or psychotic symptoms. At study's end, they were offered the Participant Workbook and a workshop covering the topics, targeted to the individual's expressed needs.

Products for Task 8: Workbooks sent and workshops offered and provided

#### **Task 9: Data Analysis**

**Months 33-52, June 2012- March 2015**



## Products for Task 9: Completed data analysis

The main quantitative data analysis strategy was intention-to-treat, with all participants analyzed in accordance with their initial group assignments. Baseline characteristics were compared between participants in each arm using chi-squared tests or analysis of variance (ANOVA), as appropriate. Each outcome was treated as independent of the others. Randomized groups were compared using repeated measures mixed linear models to estimate group by time interaction. Examining outcomes within subgroups utilized this same strategy. Because mixed linear model analysis accommodates missing data without loss of subjects, no data imputation strategy was necessary for missing data. To investigate the relationship between two continuous variables, linear regression was used. *P* values less than or equal to .05 were considered statistically significant, and those between .05 and .10 were considered to document trends that approached, but did not attain, statistical significance. The study was designed to provide statistical power of .80 to document as statistically significant a true population difference in intervention effect equal to at least .25 *SD* of a primary outcome variable.

Each qualitative data source was examined individually by at least two staff members. Each reviewer sorted the descriptions, concepts and central ideas into potential themes and linked themes to verbatim quotes (Bernard, 2006; Maxwell, 1996). Independent reliability tests of the coding (Ryan et al., 2009) were conducted for each source. A researcher who had not been involved in the initial coding matched caregivers' quotes with themes and a kappa statistic (Cohen, 1968) computed.

Primary study outcomes. Primary study outcomes included anxiety, depression, communication, resilience, and personal and family coping

Primary analysis. During twelve months there were significant time effects with participants in all arms improving for all outcomes except resilience (see manuscript Appendix). There were no significant randomization group effects or group by time interaction effects.

Secondary analysis. We also analyzed differences in outcomes by post deployment stressors (adjustment since service member's return, difficulty providing care after injury), stressful life events, which are related to physical and psychological problems (Dohrenwend, 2006), and dosage. Here, also, participants tended to improve.

Adjustment since service member's return. Participants who reported that they, the service member, or the relationship had (*n* = 83) or had not adjusted (*n* = 121) since return were separately analyzed. For those who had not adjusted, there were significant time effects for improved anxiety (*p* < .001), depression (*p* = .001), and personal coping (*p* < .001) and a trend for family coping (*p* = .058) but no randomization group or group by time interaction effects. For those who were adjusted, there was a significant time effect for improved personal coping (*p* = .008) but no randomization group or group by time interaction effects.

Little outcome variance was explained by time since service member's return from deployment. Only family coping was statistically significant (*n* = 120, *R*<sup>2</sup> = .035, *p* = .040), with spouses of recently returned service members doing better than spouses of those who returned earlier.

Care difficulties. Participants with injured service members with care difficulties were analyzed separately from those not experiencing care difficulties. For spouses experiencing care difficulties (*n* = 114) there were time effects for improved anxiety (*p* = .002), personal coping (*p* = .001), and family coping (*p* = .019), but no randomization group effect or group by time

interaction effect for any outcome. For those who without care difficulties ( $n = 113$ ) there were time effects for improved anxiety ( $p < .001$ ), depression ( $p < .001$ ), and personal coping ( $p < .001$ ) and randomization group effects for anxiety ( $p = .001$ ) and depression ( $p < .001$ ) but no group by time interaction effects.

**Stressful life events.** Presence of stressful life events explained little variance in outcomes. Statistically significant variance explained was found for anxiety ( $n = 183$ ,  $R^2 = .060$ ,  $p = .012$ ), depression ( $n = 182$ ,  $R^2 = .088$ ,  $p = .001$ ), resilience ( $n = 181$ ,  $R^2 = .023$ ,  $p = .041$ ), and personal coping ( $n = 185$ ,  $R^2 = .115$ ,  $p < .001$ ) and a trend was found for family coping ( $n = 118$ ,  $R^2 = .065$ ,  $p = .053$ ).

**Dosage.** When support ( $n = 31$ ) and education ( $n = 26$ ) participants who had six sessions or more and usual care ( $n = 75$ ) were compared, there were time effects for improved anxiety ( $p < .001$ ), depression ( $p = .004$ ), and personal coping ( $p < .001$ ) but no group or group by time interaction effects for any outcome. There were only time effects so no one group improved when examining participants with higher dosage. When comparing *only* support and education participants who had at least six sessions, there were group by time interaction effect trends for improved resilience ( $p = .075$ ) and family coping ( $p = .052$ ), with support arm participants showing better outcomes than webinar arm participants. There were also significant time effects for improved anxiety ( $p = .002$ ), personal coping ( $p = .014$ ), and a time effect trend for improved depression ( $p = .053$ ). The resilience and family coping findings were interesting trends. However, they do not, by themselves, provide sufficient scientific evidence to recommend a specific minimum dosage of either intervention.

### **Participant Benefit**

Participant responses to questions about whether and what type of benefit was received were coded by randomization arm. The kappa for this coding was 0.95, indicating high agreement among researchers on themes (Landis & Koch, 1977). For support participants, connecting with others was the most important benefit. *"It was comforting to have the opportunity to share in a group where everyone had similar difficulties and truly understood. It was also good to be able to share hope with others who felt hopeless."* *"It was nice to know I wasn't the only one dealing with the same issues."* Spouses who were Guard and Reserve or whose families did not have military experience were surprised to realize how similar experiences were. *"Interesting to hear that people who do live near a base or are active duty face many of the same problems."*

Self-efficacy was an important benefit, including skills building in areas of self-care, problem solving and stress reduction and self-reflection, new perspectives, and increased confidence. *"A lot of times you forget that you can give so much you have nothing to give, so it brought back a renewed sense...to work on having a goal to think about me and that I matter."* *"The group has really helped me deal with all the stress."* One critical area related to self-efficacy was using skills to work on relationships. *"I realized that my husband needs me more than I realized and more than he realized it. I stopped thinking so much about myself and more about him."* Learning skills was tied into participants' appreciation of the resources and workbook and their appreciation that someone cared about them. *"It provided me with resources and ideas to help me in different areas."* *"It [the workbook] had a lot of resources and ... good information."*

Benefits for education arm participants were similar. The most mentioned area was self-efficacy, which included self-reflection, a new perspective, and learning skills. *"In some of the modules we did, it really got me to think about when my husband's emotions would go from one*

*side to the other...and the modules helped me to zero in on that and not take it personally and deal with what is an issue and what is a non issue no matter how he is reacting.” “One of the things that really opened my eyes was the warning signs, things to look for.”*

One particular area related to learning and self-efficacy was improved relationships. *“It helped me to understand what my husband was going through and how I could deal with it and help him to deal with it.” “It also helped me to be more supportive.” “This program helped my husband and me to openly discuss issues that, of course, led to more communication and able to focus on issues that were identified.”*

Tied into these two areas but specifically mentioned by participants were the resources, including the workbook and webinars, and appreciation that someone cares. *“The materials that were provided offered some good information regarding the issues that we as a military family deal with especially with regards to multiple deployments and the adjustments that go along with that both before and after and during.” “I’m really thankful for people like you who take the time to do this.”*

Although education arm participants were not able to speak with other participants in their group, they voiced a sense of connecting with others. *“So listening in on the calls and just kind of hearing what’s going on and knowing that there’s other spouses that are listening at the same time really benefitted me personally.”*

For usual care arm participants, the main benefit received was self-efficacy with an emphasis on self-reflection. Specifically, participants mentioned that the assessment battery questions had prompted them to think about what was going on and to modify behavior, including specifically improving their relationship with the service member. *“It made me look at certain things that I wouldn’t have made a connection about.” “I looked at some of the questions that you asked about communicating with my spouse and I tried to do that more...and it has helped a lot.” “It’s good every once in a while to be reminded, to think about everything. Yeah, like how is my health, how am I doing, are we working as a family? So it’s good to be reminded with all the questions of what areas we can improve in and just kind of assess everything and kind of look at it, so that is good.”*

Usual care arm participants also mentioned that someone cared about them. *“Even though I was just in the control group and having these interviews, it let me know that somebody was listening and having a voice has helped me emotionally.” “I felt like there was somebody that was willing to listen and get down and actually go through what was going on within the family and all that. That was something that helped.”*

### **Task 10: Preparation/Dissemination of Results Months 31-52, April 2012-March 2015**

Products for Task 10: Papers and Presentations, Grants, Implementation

- 2 manuscripts published
- 2 draft manuscripts in preparation
- 1 grant proposal submitted in May 2014 to Army
- 1 grant proposal submitted in December 2014 to VA Health Services Research (scored but not funded)
- 1 grant proposal to be submitted in June 2015 to VA Rehabilitation Research
- 7 presentations
- Increased implementation of model in VA system

## Key Research Accomplishments

- Significant improvement over time for participants in all study arms for
  - anxiety
  - depression
  - personal/family coping
  - communication
  - not for resilience
- Significant improvements over time for participants who
  - were dealing with care challenges for an injured service member
  - had scores reflective of major depression or generalized anxiety disorder
  - experienced more serious life events
  - reported not yet being adjusted to the service member's return in some way
  - regardless of time since deployment return
- Support arm participants attributed benefit to
  - self-efficacy: self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook.
- Education arm participants ascribed benefit to
  - self-efficacy: self-reflection, skills building, and resources available.
- Without access to resources, skills building techniques, or support of others, usual care arm participants used what they had access to and ascribed benefit to
  - self-efficacy: self-reflection, specifically how the assessment battery had made them question and modify their thoughts and behaviors.
- Service use findings
  - At baseline, 39.6% of spouses were using counseling or support services and 50.9% of service members were using services
  - Number of services used was related ( $r = .53, p < .001$ )
  - Service members more likely to use alcohol/drug treatment and psychotropic medications, and spouses more likely to use online services
  - Spouses using services had more depression and anxiety symptoms, and were in poorer health and less resilient than those not using services
  - Three service member need factors significantly explained spouse service use
    - service member PTSD severity,
    - injuries causing care difficulties, and
    - spouse frustration at finding resources

## Reportable Outcomes

### Manuscripts

- Nichols L.O., Martindale-Adams, J., Zuber, J., & Graney, M. Service Member Need and Supportive Services Use of Military/Veteran Spouses. Military Behavioral Health, Published online: 09 Feb 2015, DOI:10.1080/21635781.2014.995251
- Nichols, L.O., Martindale-Adams, J., Zuber, J., Graney, M., Burns, R., & Clark, C. Support for Spouses of Post Deployment Service Members. Military Behavioral Health, Published online: 30 Jan 2015, DOI:10.1080/21635781.2015.1009210
- Draft manuscripts:

- Intimacy: Military Spouses and Service Members after Deployment
- Social Support for Military Wives: Real vs. Ideal

## Grants

Family members, particularly parents, have contacted us to request assistance while their children are deployed and after deployment.

- Interventions for Parent Caregivers of Injured Military/Veteran Personnel. Submitted May, 2014 to Military Operational Medicine Research Program (MOMRP). Abstract attached.
- Supporting Parent Caregivers of Injured Veterans. Submitted December, 2014 to VA Health Services Research and Development (HSR&D), to be resubmitted to VA Rehabilitation Research. Abstract attached.

## Presentations

- Nichols, LO, Martindale-Adams J. Spouse READI Telephone Support (Resilience Education and Deployment Information), U.S. ARMY MOMRP Meeting, Frederick, MD, July 21, 2010
- Nichols, L, Martindale-Adams, J. VA Caregiving Research. University of Tennessee Health Science Center, Preventive Medicine Faculty Seminar, 11/18/10.
- Nichols, LO, Martindale-Adams J. Update: Spouse READI Telephone Support (Resilience Education and Deployment Information), U.S. ARMY MOMRP Meeting, Frederick, MD, July 21, 2011
- Martindale-Adams, J, Nichols, L. Research with Post 9/11 Spouses. VA National Caregiver Research Interest Group (CGRIG), 2/14/12.
- Nichols, L, Martindale-Adams, J. Spouse READI: Telephone Support (Resilience Education and Deployment Information). U.S. Army MOMRP Meeting, August 2, 2012.
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## National Program

- Post 9/11 Spouse Telephone Support Program – VA National Rollout - October 2011 – ongoing. Training for VA staff to deliver telephone support groups, all materials provided by VA's Memphis Caregiver Center
- Program being expanded in 2015 to include telephone support groups for Caregivers of Veterans of All Eras, Dementia Caregivers, Spinal Cord Injury/Disorders Caregivers, PTSD Caregivers, MS Caregivers, and ALS Caregivers

## Conclusion

In this study of spouses coping with reintegration of the service member, participants in the telephone support arm, the education webinar arm, and the usual care arm had a significant improvement over time for anxiety, depression, personal/family coping and communication, but not for resilience. Similar improvements over time across all study arms occurred for

participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return.

Improvement across all arms was unexpected. Support arm participants attributed benefit to self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook. Education arm participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building techniques, or support of others, usual care arm participants used what they had access to and attributed benefit to the assessment battery making them question and modify their thoughts and behaviors. Another factor that may have influenced participants positively was the perception that someone cared about them. Participants were grateful that DoD and the VA cared about military families and the resource and compassion that the study staff provided. This was the case even for usual care participants who would mention how nice the data collection staff were.

## **Implementation**

### **Current Implementation**

The VA has implemented Spouse Telephone Support as a National Program, providing training for VA staff to deliver telephone support groups, with Caregiver Notebooks and a Group Leader Manual provided by VA's Memphis Caregiver Center. This model is being expanded in 2015 to include telephone support group training and materials for six other types of caregivers.

- Post 9/11 Spouse Telephone Support Program – VA National Rollout - October 2011 – ongoing.
- Program being expanded to include telephone support groups for Caregivers of Veterans of All Eras, Dementia Caregivers, Spinal Cord Injury/Disorders Caregivers, PTSD Caregivers, MS Caregivers, and ALS Caregivers

### **DoD Possible Implementation**

- Providing spouses and significant others with resources and education about post deployment challenges and access to skills building and support from peers or caring professionals increases self-efficacy and ability to manage the relationship between spouse and service member.
- There are multiple avenues that can be used to support military families post deployment, dependent on the capacity and staffing of the military or veteran organization providing service.
  - Options include telephone or in-person support groups, education webinars that could be pre-recorded with the increased capability of discussion among participants, or webinars that could be watched when convenient for participants followed by monitored chat rooms or scheduled discussions.

Spouses who participated were eager for assistance and reported learning new skills and strategies, as shown in the fairly extensive quote below.

*“I have made several gains over the past 6 months to include: -More self-aware of my "trouble spots" with stress and frustration and what can cause me to feel this way. -Learning how to better cope with and communicate these feelings so that they don't build up. -Realizing that many of my experiences and feelings are shared with others and that I am not alone, I am not unusual and things that I find my "civilian spouse" friends don't struggle with, are often very common feelings/concerns for military spouses; I have noticed that I am a more patient person (or at least I make a better effort to be aware of my thoughts and feelings before I simply blurt them out in a possibly hurtful/deconstructive way). I may not always succeed, but I am working to be better at "thinking before I speak" and accessing what's the root of my emotions or feelings before I just dump them on someone else; I would really like to continue working on better communication skills that focus on really hearing what the other person is saying, instead of just always focusing on what I want to say next; I am taking care of myself by putting a more concerted effort on making \*real\* and meaningful friendships. As wonderful as it is having my husband back from deployment, the friendships of other women has proven vital to my sanity, in terms of their understanding of my perspective as a spouse and woman. There are certain things that women only understand about other women, and even with a husband who is a great listener, girlfriends are still so important for connecting, laughing, chatting and sharing thoughts on different things from a woman's perspective. Instead of trying to just go to every social event possible to be "busy," I am now focusing on meeting friends, spending quality time with them and building trust, instead of just meeting as many people as possible...”*

**References Cited** – Please see references in manuscripts in Appendices

**Quad Chart** (following, page 14)

## **Appendices**

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• Supporting Parent Caregivers of Injured Veterans (VA Health Services Research)	
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- Nichols L.O., Martindale-Adams, J., Zuber, J., & Graney, M. Service Member Need and Supportive Services Use of Military/Veteran Spouses. *Military Behavioral Health*, Published online: 09 Feb 2015, DOI:10.1080/21635781.2014.995251
- Nichols, L.O., Martindale-Adams, J., Zuber, J., Graney, M., Burns, R., & Clark, C. Support for Spouses of Post Deployment Service Members. *Military Behavioral Health*, Published online: 30 Jan 201, DOI:10.1080/21635781.2015.1009210



Title: Spouse Resilience, Education And Deployment Information: Randomized Clinical Trial  
 Proposal ID, Funding Source: W81XWH-09-1-0242, DHP MOMRP



PI : Nichols Org: VA Medical Center, Memphis TN Award Amount: \$1,164,962

### Study/Product Aim(s)

- Assess feasibility of telephone support group sessions for post deployment spouses;
- Assess satisfaction;
- Determine whether telephone support groups significantly improve outcomes, compared to educational webinars and usual care

### Approach

Randomized clinical trial of 228 spouses, 1/3 in each study arm. Compared usual care, and webinar sessions to more intensive telephone support groups. Telephone support arm spouses participated in 12 one-hour telephone support groups focusing on education, skills building and support over six months. Education group spouses participate in online webinars. Full data were collected baseline, 6 and 12 months, outcomes at 3 and 9 months.

### Dissemination

#### Military Implementation Options

- Telephone support group Spouse Workbook and Staff Manual
- On-demand webinars with Workbook
  - Monitored chat/blog/discussions
  - Embedded videos

#### VA Implementation Current

- Telephone Support for Caregivers of Veterans
  - Post 9/11 Spouses/Caregivers
  - Caregivers of Veterans of all eras
  - Dementia Caregivers
  - SCI/D Caregivers
  - PTSD Caregivers
  - MS Caregivers
  - ALS Caregivers

Accomplishment: Two manuscripts published, one in progress, multiple VA implementation programs based on this project

### Timeline and Cost

Activities	CY	10	11	12	13	14	15
Finalize manual, obtain approvals, print materials							
Recruit subjects							
Administer interventions							
Collect, analyze, process and publish data							
Estimated Budget (\$K)		\$130	\$337	\$341	\$265		

### Goals/Milestones

- ✓ Finalized Manual of Operations (MOP) including telephone support group topics and scripts and online education/webinar sessions topics and scripts, screening forms and scripts, data collection forms, scripts and documentation
- ✓ Obtain IRB and HRPO approval
- ✓ Print approved materials, brochures and Workbooks
- ✓ Hire/Train personnel
- ✓ Recruit, enroll and randomize subjects (Goal: 225 spouses )
- ✓ Administer intervention 1 (telephone support groups)
- ✓ Administer intervention 2 (online education/webinar)
- ✓ Collect data
- ✓ Analyze data
- ✓ Process data
- ✓ Publish data

### Budget Expenditure to date

Projected Expenditure: \$1,164,962.00 Actual Expenditure: \$1,149,308.73  
 (as of 03/31/15)

## **Interventions for Parent Caregivers of Injured Military/Veteran Personnel - Army**

### **Abstract**

**Background:** For the current conflicts, the high operational tempo and its repeated deployments have had significant effects on service members. Over 103,792 individuals have been diagnosed with PTSD and 253,330 with TBI. Almost half (49.3%) of active military members are 25 years of age or younger, with the highest percentage of younger members in the Marines (68.5%) and 43.3% are unmarried. For many young and unmarried military service members, parents and, to a lesser extent, other family members, provide care ranging from full care to supervision. This group of individuals, focusing on parents, are frequently at a loss as to how to cope with changes in their child.

**Hypotheses:** REACH (Resources for Enhancing All Caregivers Health) individual Sessions, compared to Education Webinars, will be more effective in improving outcomes, including depression, anxiety, burden, coping and self-efficacy. Telephone Support Groups (based on Spouse Telephone Support (STS), compared to the webinar attention control study arm, will be more effective in improving outcomes, including depression, anxiety, resilience, coping and self-efficacy.

**Specific Aims:** Aims include: 1) assess feasibility; 2) determine participant satisfaction; 3) determine participant adherence to therapeutic recommendations; and 4) determine changes in parent/family caregivers' outcomes; and 5) develop dissemination materials.

**Study Design:** This randomized clinical trial will test two established interventions to provide education, training in coping skills, and support to parent/family member caregivers of military personnel (active duty, Guard, Reserve) who are post deployment. The two active interventions are research based and currently implemented nationally in the VA system for caregivers. The two study arms are: REACH individual sessions and webinar education sessions, which are analogous to the usual standard of care. Each arm will have 80 participants, for a total of 160 participants. Telephone data collection will be conducted at baseline, three and six. Outcome variables include depression, anxiety, burden, coping and self-efficacy, and participant satisfaction, focusing on utility and support.

**Relevance:** The caregiving population targeted in this study is underserved by VHA and DoD; frequently privacy laws prohibit them from even an understanding of the issues facing their child. However, with the large number of unmarried and young service members, parents frequently shoulder a large portion of care. For example, PTSD caregivers' care burden similar to dementia and chronic schizophrenia caregivers

**Submitted May, 2014 to:** BAA program, U.S. Army Medical Research and Materiel Command, Fort Detrick, Maryland 21702-5012

## **Supporting Parent Caregivers of Injured Veterans – VA Health Services Research and Development (HSR&D) (not funded, 2015)**

### **Specific Aims**

This randomized clinical trial will test a behavioral caregiving intervention that has been used successfully for dementia and SCI/D caregivers to provide services to stressed and burdened parent caregivers of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF)/Operation New Dawn (OND), OEF/OIF/OND Veterans. This intervention is four individual intensive core sessions plus assessment and closure sessions that provide education, support, and skills building including problem solving, cognitive restructuring, communication, and stress reduction targeted to an assessment of the care dyad's needs. It will be compared to education webinar sessions, which are analogous to the usual standard of care and will function as an attention control arm. The study objective is to determine which delivery method is more effective at helping parent caregivers improve their depression, anxiety, and burden.

The long-term objective is to develop materials for parent caregiver interventions that can be disseminated across the Department of Veterans Affairs (VA) Veterans Health Administration (VHA). Each of the interventions (the individual sessions and the education webinars) have different strengths, and may be more acceptable for different organizations and staff, according to varying logistic constraints and organization, patient, caregiver, and staff needs.

Research goals include:

- 1) Determine feasibility of conducting interventions with parent caregivers.
- 2) Determine effective strategies for providing education, skills building and support for parent caregivers of returning Veterans; and
- 3) Develop materials for clinical translation and implementation.

The hypotheses are:

**Hypothesis 1:** Education Webinar arm participants will improve during the course of the study on outcomes, including depression, anxiety, and burden.

**Hypothesis 2:** Individual Session arm, compared to the Education Webinar study arm, will be significantly more effective in improving outcomes, including depression, anxiety, and burden

The effect of potentially confounding variables will be controlled for in analysis, i.e., determining whether impact is equivalent for participants who differ on a range of variables such as number of sessions completed, amount and type of care provided, and type of Veteran injury/disability.

## **Supporting Parent Caregivers of Injured Veterans – Rehabilitation Research and Development (RR&D) (to be submitted June 15, 2015)**

### **Specific Aims**

This randomized clinical trial will test a behavioral caregiving intervention that has been used successfully for dementia and SCI/D caregivers to provide services to stressed and burdened parent caregivers of Operation Enduring Freedom (OEF)/Operation Iraqi Freedom (OIF)/Operation New Dawn (OND), OEF/OIF/OND Veterans. This intervention is four individual intensive core sessions plus assessment and closure sessions that provide education, support, and skills building including problem solving, cognitive restructuring, communication, and stress reduction targeted to an assessment of the care dyad's needs. It will be compared to usual care to determine if parent caregivers improve their depression, anxiety, and burden.

The long-term objective is to adapt materials for parent caregiver interventions that can be disseminated across the Department of Veterans Affairs (VA) Veterans Health Administration (VHA).

**Objectives** include:

- 1) Work with Subject Matter Experts from the Polytrauma Family Care Practices Advisory Committee to adapt materials (Parent Caregiver Notebook and Interventionist Manual).
- 2) Determine whether the intervention will be effective for parents who are providing multiple types of care for Veterans with different types of problems.
- 3) Determine which types of parent Caregivers (e.g., those providing care for severe injuries, those providing supervision, specific diagnoses) will most benefit.
- 4) Refine materials for future clinical translation and implementation.

The hypothesis is:

**Hypothesis 1:** Participants in the Individual Session arm, compared to those in the Usual Care arm, will have significantly greater improvement in outcomes, including depression, burden, anxiety, and Caregiver frustrations.

The effect of potentially confounding variables will be controlled for in analysis, i.e., determining whether impact is equivalent for participants who differ on a range of variables such as number of sessions completed, amount and type of care provided, and type of Veteran injury/disability.

## **Social Support for Military Wives: Real vs. Ideal**

Clark C., Haley L., Nichols L.O., Martindale-Adams, J., & Zuber, J.

### **Abstract**

Deployment and reintegration can be stressful times for military families. Social support networks are important for military families during these times. Thus, social support from family and friends is important for military wives. This paper examines quantitative and qualitative social support data collected from military spouses participating in the Spouse READI (**R**esilience **E**ducation **A**nd **D**eployment **I**nformation) study which was a randomized clinical trial including three arms: telephone support groups, educational webinars, and usual care. This analysis focuses on the telephone support group arm comparing how spouses discussed social support from friends, family members, and their service members in the telephone support groups to the same spouses' answers on the Multidimensional Scale of Perceived Social Support (MSPSS) also focusing on support from friends, family, and service member. Most military wives reported high levels of support on the MSPSS but discussed lack of support in group. Case studies are used to highlight these differences.

## Service Member Need and Supportive Services Use by Military/Veteran Spouses

Linda O. Nichols, Jennifer Martindale-Adams, Marshall Graney, and Jeffrey Zuber

*Veterans Affairs Medical Center Memphis, Memphis, Tennessee; and University of Tennessee  
Health Science Center, Memphis, Tennessee*

Spouse predisposing, enabling, and need factors and service member need variables were examined to explain number of supportive services used by spouses. Service use was analyzed with stagewise regression for 227 spouses. Spouses who used supportive services reported worse depression, anxiety, resilience, and general health, and more service member care difficulties. By themselves, spouse predisposing, enabling, and need variables did not significantly explain spouse service use. Service member need variables significantly explained 16.2% of spouse variance and 36.7% of service member variance. Spouses who were caregivers were more distressed, and they and their service members used more services. Targeted help with caregiving may be a needed addition to reintegration assistance.

**Keywords:** Service use, depression, mental health, counseling, stagewise regression, family dynamics, interrelated, reintegration, postdeployment

Military-specific variables, such as combat injury or postdeployment injury aftermath, influence service use by service members and veterans. Even though family members also suffer effects of these stressors, it is unclear how these variables may be related to service use by spouses of service members and veterans (Basham, 2013; Mansfield et al., 2010). For example, service members' deployment is associated with spouses' increased mental health diagnoses and supportive services use (Mansfield et al., 2010). Mental health service use is 19% to 27% higher among spouses of military members who have been deployed compared to spouses of nondeployed military members, with higher use associated with longer deployments (Mansfield et al., 2010). For postdeployment National Guard members and their significant others, of those meeting criteria for mental health problems 50% of members and 61% of significant others reported seeking help (Gorman, Blow, Ames, & Reed, 2011).

Andersen and Aday's behavioral model of health care use is widely used to examine service use. The model includes predisposing (e.g., demographic, social structural, attitudinal-belief variables), enabling (e.g., family resources, community characteristics), and need variables (e.g., perceived and evaluated illness) (Aday & Andersen, 1974; Andersen, 1995). For mental or emotional problems, predisposing variables (age, gender, race/ethnicity, marital status, education), enabling and impeding variables (income, health insurance, emotional support), and perceived need (number of mentally and physically unhealthy days, self-rated health) and evaluated need (psychological distress) are significantly associated with service use (Dhingra, Zack, Strine, Pearson, & Balluz, 2010).

The most frequently researched predisposing variables are age, marital status, gender/sex, education, ethnicity/nativity, and employment status (Babitsch, Gohl, & von Lengerke, 2012). For military families, marital status and age are important in predicting potential postdeployment difficulty, although they are not specifically linked to service use. Unmarried partners (Spera, 2009) and younger families report more difficulties (Booth, Wechsler Segal, & Bell, 2007; Faber, Willerton, Clymer, MacDermid, & Weiss, 2008). Predisposing variables associated with service use for military members, but not investigated for their families, include race (Spoont, Hodges, Murdoch, & Nugent, 2009), gender (Chatterjee et al., 2009; Fikretoglu,

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We would like to thank the Spouse READI intervention and data collection staff: Denise Brown, M.S., Carolyn Clark, M.A., Karsten Everett, M.S., Jordan Fields, M.A., Patricia Miller, M.A., and Francisco Salgado Garcia, M.A. We also thank our participants for finding time to participate in this study while providing excellent care to their family members.

Address correspondence to Linda O. Nichols, Departments of Preventive Medicine and Internal Medicine, University of Tennessee Health Science Center, VAMC (11 H), 1030 Jefferson Avenue, Memphis, TN 38104. E mail: linda.nichols@va.gov

Guay, Pedlar, & Brunet, 2008), age (Chatterjee et al., 2009), and marital status (Fikretoglu et al., 2008).

Enabling variables most often studied are income/financial situation, health insurance, having a usual source of care, and availability of medical services (Babitsch et al., 2012). For many service members, enabling variables, or more accurately the lack thereof, can serve as barriers for supportive service use. These barriers can be similar to those for nonmilitary individuals, such as general stigma associated with mental health care (Gorman et al., 2011); or, more related to military culture, concerns about service utilization appearing on military records (Gorman et al., 2011); or lack of trust in military health, administrative, and social services (Fikretoglu et al., 2008). For spouses/significant others of service members, service use barriers are similar to civilians' barriers, including costs, scheduling appointments, time off work, and not knowing where to get help (Gorman et al., 2011).

The most frequently examined need variables are mental or physical health, self-reported/perceived health, medical conditions (e.g., diabetes, depressive symptoms, hypertension, heart disease, cancer), prior medical/chronic conditions, and daily activity limitation (Babitsch et al., 2012). Need for service is also important for military spouses. In a sample of National Guard significant others, 34% met screening criteria for one or more mental health problems and 61% of those individuals sought help (Gorman et al., 2011).

Perceived need for services has been conceived as a biological, attitudinal, and societal construct consisting of the immediate reason for use, with capability to increase or decrease through such variables as health education, social structure, health beliefs, and finances (Andersen, 1995). Need that could influence service use can be conceptualized beyond self and societal parameters to include concerns of the returning service member partner. Need can be mutable (Andersen, 1995), and family variables can impact individual need. The original model of service use focused on the family as the unit of analysis because an individual's service use is related to family demographics and economics (Andersen, 1995).

Military specific stressors such as deployment can worsen family members' psychological health (Chretlen & Chretlen, 2013; Link & Palinkas, 2013; MacDermid Wadsworth et al., 2013; Mansfield et al., 2010) and are associated with service use both for service members (Christensen & Yaffe, 2012) and for their spouses (Larson et al., 2012). In one Army study of service member spouses, deployment was associated with increases of 4.2% in specialist office visits, 6.7% in antidepressants, and 14.2% in antianxiety medications (Larson et al., 2012).

A recently proposed conceptual framework suggests reciprocity between patient and spouse well-being, especially as it relates to disease management (Trivedi, Piette, Fihn, & Edelman, 2012). This linkage is explicit in family resiliency and stress theory; during adaptation to a service member's injury and its consequences, the family unit or individual members can experience deterioration (Kosciolek,

McCubbin, & McCubbin, 1993; MacDermid Wadsworth, 2010; McCubbin & McCubbin, 1989). For example, Vietnam-era veteran post-traumatic stress disorder (PTSD) has been found to negatively impact spouse or partner health, including increased depression, insomnia, family conflict, and secondary traumatization (Link & Palinkas, 2013). Wives of service members/veterans of the Iraq and Afghanistan conflicts with serious injuries, compared to those whose husbands had no injuries or less serious injuries, were more likely to be depressed and anxious and have less social support (Nichols et al., 2013). Thus, family stress and strain negatively impact military spouse psychological health (Green, Nurius, & Lester, 2013) and the service member. Service members with traumatic brain injury (TBI) make less progress in treatment if the family is distressed (Dausch & Saliman, 2009). Military family caregivers with higher depression, anxiety, or any physical health problems increase the chance of subsequent injuries to the injured service member (Carlson et al., 2012). However, service member PTSD symptoms often decrease as family and social support increases (Frain, Bethel, & Bishop, 2010). Improving caregiver social support improves outcomes for both caregiver and veteran (Griffin, Friedemann-Sánchez, Hall, Phelan, & van Ryn, 2009).

This expanded behavioral model was used to examine number of types of supportive services used for military/veteran spouses. Spouse services used were examined by spouse predisposing, enabling, and need variables, and service member related need variables, including PTSD symptom severity, resistance to getting services, and difficulty with care caused by injuries. To further investigate the interrelationship between spouses and service members, spouse need and service member need variables were used to examine number of service member services used.

## METHODS

### Sample

Spouses were in a national randomized controlled trial: Spouse READI (Resilience, Education, and Deployment Information), funded by the U.S. Department of Defense (DoD) Defense Health Program and managed by the U.S. Army Medical Research and Materiel Command, Military Operational Medicine Research Program. READI was designed to test telephone and online strategies to help military spouses cope with the reintegration process. The study was housed at the Memphis Veterans Affairs (VA) Medical Center and overseen by its institutional review board.

Participants were spouses or significant others living as married of a service member or veteran who was at least one month postdeployment from serving in Iraq (Operation Iraqi Freedom [OIF], Operation New Dawn [OND]) or Afghanistan (Operation Enduring Freedom [OEF]).



Participants self-identified as needing assistance with the reintegration process. Participants had to be committed to the relationship and not expect the service member to be redeployed during the six months of the intervention.

### Data and Model Development

All data, including information on the service member/veteran, were from spouse self-report and were collected at study baseline before randomization by telephone by trained and certified research specialists. Service use was examined in two ways. The first measure was use of services to categorize spouses and service members as service users or not service users. Spouses were asked if they or their service member had received any type of supportive services in the past six months through military, civilian, VA, or other providers. For the second measure, if spouses reported service use, they were asked to report all types of services used, including support groups, counseling (individual, couples, family, pastoral), treatment for drug/alcohol use, antidepressant or anti-anxiety psychotropic medication, online education/support, or another supportive service. Total number of services used included each type of service received from each provider. For example, a spouse receiving individual counseling and pastoral counseling from both military and civilian providers would be counted as receiving four supportive services. Number of times a spouse received each service was not counted.

Spouse model variables were chosen based on variables most often examined in the service use behavioral model (Babitsch et al., 2012) and/or shown to be related to military families. Spouse *predisposing* variables most often studied in other service use analyses (Babitsch et al., 2012) and included were age, race, ethnicity, and education. Gender was excluded because there were only three male spouses.

*Enabling* variables that have been extensively studied (Babitsch et al., 2012) and were included were monthly household income and employment. Spouse frustration with trying to find resources to help or assist with reintegration was a proxy for service availability (Babitsch et al., 2012). Guard/Reserve status was another proxy, because these families do not have access to resources available on active-duty installations (Blow et al., 2012).

An additional enabling variable was social support, which is an important buffer against stress for military spouses and a variable in family resilience (MacDermid, Samper, Schwarz, Nishida, & Nyaronga, 2008). Individuals who receive emotional support are less likely to use health care services for mental or emotional issues than those who receive less frequent emotional support (Dhingra et al., 2010). Lack of support leads to adjustment difficulties for families postdeployment (Spera, 2009).

Employment was coded 0 (*Not employed*) or 1 (*Employed*). Spouse frustration with trying to find resources to help or assist with reintegration issues (Nichols et al., 2013) was scored 0 (*No*) or 1 (*Yes*). The 12-question Multi-dimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) focused on family, friend, and significant other support, with items scored from 1 (*Very strongly disagree*) to 7 (*Very strongly agree*) and scores summed. The MSPSS has a Cronbach's alpha of .91 and subscale alphas of .90, .94, and .95, respectively (Dahlem, Zimet, & Walker, 1991).

*Spouse need* variables included depression, anxiety, and health status, all of which are frequently part of the behavioral health model (Babitsch et al., 2012). Resilience, conceptualized as stress-coping ability and a potential treatment target in anxiety, depression, and stress reactions (Connor & Davidson, 2003), was also included. The Patient Health Questionnaire (PHQ-9) assessed depressive symptoms (Kroenke, Spitzer, & Williams, 2001). The nine items, based on the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV), depression diagnostic criteria, are scored from 0 (*Not at all*) to 3 (*Nearly every day*). Scores are summed to characterize minimal (0 to 4), mild (5 to 9), moderate (10 to 14), moderately severe (15 to 19), or high/severe (20 to 27) depression. Cronbach's alphas from the original samples are .86 and .89. With a 10 cutoff point, sensitivity is .88 and specificity is .88 for detecting major depression (Kroenke et al., 2001).

The 7-item Generalized Anxiety Disorder scale (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006) focuses primarily on generalized anxiety disorder symptoms but also screens for panic disorder, social anxiety disorder, and PTSD (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007). Scoring ranges from 0 (*Not at all*) to 3 (*Nearly every day*) for an overall score of 0 to 21; higher scores indicate more anxiety. GAD-7 has a Cronbach's alpha of .92, and used for general anxiety disorder screening, a 10 cutoff point has sensitivity of .89 and specificity of .82 (Spitzer et al., 2006).

The 25-item Connor-Davidson Resilience Scale (CD-RISC) assessed how respondents cope with stress, with responses from 0 (*Not true at all*) to 4 (*True nearly all of the time*). Higher scores indicate greater resilience. The scale has a Cronbach's alpha of .89 with an intraclass correlation coefficient of .87 (Connor & Davidson, 2003).

General health was assessed with one Medical Outcomes Study question (Ware et al., 1995). Response options ranged from 0 (*Poor*) to 4 (*Excellent*). This question is comparable to longer instruments in predicting mortality, hospitalization, and high outpatient use (DeSalvo, Fan, McDonnell, & Fihn, 2005).

*Service member related* need variables were based on items that have been shown to increase military spouse/family distress or service use. Three items from spouse self-report were included in the model: service member



PTSD symptom severity (Link & Palinkas, 2013), service member resistance to seeking help, and care difficulties related to injuries (Nichols et al., 2013).

The 17-item Partner PTSD Checklist (PCL-P) (Gallagher, Riggs, Byrne, & Weathers, 1998) was used to assess spouse perceptions of service member PTSD symptoms. PCL-P items correlate to the PTSD Checklist Military (PCL-M) (Weathers, Litz, Herman, Huska, & Keane, 1993), which assesses PTSD symptoms frequency. Items on both measures are scored 1 (*Not at all*) to 5 (*Extremely*), with an overall score of 17 to 85, where higher scores indicate more symptoms or greater severity. PCL-P has a Cronbach's alpha of .97. At a 50 cutoff point, sensitivity is .82 and specificity is .83 (Weathers et al., 1993). Correlation between the PCL-M and the PCL-P for overall PTSD is .71 (Gallagher et al., 1998).

Service member resistance to getting reintegration help was assessed with one question (Nichols et al., 2013) scored 0 (*No*) or 1 (*Yes*). Spouses were also asked if the service member had been injured (including PTSD), and if yes, if the injury had caused difficulties or extra care, scored 0 (*No*) or 1 (*Yes*). Spouses were asked to elaborate on the injury and the types of care difficulty.

### Data Analysis

Baseline data were compared between spouses who used services and those who did not using chi-squared or independent-samples *t* tests, as appropriate. For data that did not meet criteria for the chi-squared test, Fisher's exact test *p* values are reported. Spouse and service member percentage of services used were compared using difference of proportion tests. Simple regression was used to examine the relationship between two continuous variables. Multivariate models were constructed using stagewise linear regression, introducing blocks of predisposing, enabling, spouse need, and service member need variables successively as explainers of numbers of supportive services used by spouses. This same methodology, with only spouse need and service member need variables, was used to examine numbers of supportive services used by service members. For all analyses, *p* values less than or equal to .05 were considered statistically significant, and those between .05 and .10 were considered to document trends that approached statistical significance.

## RESULTS

### Sample

On average, the 227 participants were seasoned military spouses, married to service members with 14 years military

service, 3.6 total deployments and 2.1 OEF/OIF/OND deployments. Almost half of the service members (44.5%) were currently Guard or Reserve and 30.8% were active duty. Almost two-thirds had been injured during the most recent deployment, and spouses reported that almost half (43.6%) met criteria for PTSD.

### Service Use

Nonmilitary (civilian and VA) were the most used providers. For spouses, military services were 27.4% of total services, civilian services were 53.4%, and VA services were 18.1%. For service members/veterans, military services were 21.8% of total services, civilian services were 30.5%, and VA services were 46.1%.

Spouse and service member numbers of services used were related ( $r = .56, p < .001$ ). For spouses, 39.6% were using counseling or support services, as were 50.7% of service members. The modal service used was counseling (Table 1). There were three statistically significant differences in number of services used between spouses and service members. Service members used a higher percentage of alcohol/drug treatment and psychotropic medications, and spouses used more online services.

### Users and Nonusers

There were no statistically significant predisposing variable differences between spouses who were using supportive services and those not using services (Table 2). For enabling variables, although spouses who were frustrated at finding help with reintegration, compared to those who were not frustrated, were not more likely to use services themselves, their service members were (62.2% versus 43.1%,  $p = .005$ ).

All spouse need variables were significantly different between the two groups. Those using services had significantly more depression and anxiety symptoms, poorer health, and less resilience than those not using services. Further, increase in depression ( $R^2 = .044, p = .002$ ) and anxiety ( $R^2 = .048, p = .001$ ) and decrease in resilience ( $R^2 = .031, p = .008$ ) were each significantly related to an increase in number of services used by spouses.

For service member need variables, there was a trend for spouses who used services to report more severe service member PTSD symptoms than those who did not. As service member PTSD severity increased, spouses used more services ( $R^2 = .055, p < .001$ ). Spouses who used supportive services were significantly more likely to report care difficulties caused by the service member's injury. Spouses who were dealing with care difficulties used significantly more services than spouses who were not (1.67 versus 0.77,  $p < .001$ ). Their service members also used more services (2.39 versus 0.55,  $p < .001$ ) and were also more likely to

TABLE 1  
Baseline Service Use for Spouses and Service Members ( $N = 205^a$ )

Service Type	Total Number of Services Used (% of Total Use)	Spouse ( $n = 90$ ) Number of Services Used (% of Total Use)	Service Member ( $n = 115$ ) Number of Services Used (% of Total Use)	$p$ Value
Support group	76 (12.4)	38 (13.7)	38 (11.4)	.383
Counseling (individual, couples, family, pastoral)	339 (55.5)	154 (55.6)	185 (55.4)	.959
Alcohol/drug treatment	14 (2.3)	2 (0.7)	12 (3.6)	.018
Psychotropic medications	122 (20.0)	45 (16.2)	77 (23.1)	.036
Online service	46 (7.5)	30 (10.8)	16 (4.8)	.005
Other	14 (2.3)	8 (2.9)	6 (1.8)	.369
Total use	611	277	334	

Note. Difference of proportions tests used to compare spouse and service member service use rates.

<sup>a</sup>Table represents only those spouses or service members who used services.

use services (76.3% versus 24.8%,  $p < .001$ ) than the service members of spouses not dealing with care difficulties.

Despite this finding of increased services use, these spouses, compared to those not dealing with care difficulties, were more frustrated at finding resources (55.3% versus 23.9%,  $p < .001$ ). In addition, they were significantly more likely to score in the category of major

depression than spouses who were not (15.8% versus 5.3%,  $p = .010$ ).

Not all service member injuries caused care difficulties: 62% of spouses reported service member injuries, but only 50% reported care difficulties. The main difficulties included monitoring and managing/assisting the service member, particularly those with PTSD and TBI, scheduling

TABLE 2  
Baseline Characteristics of Spouses Using and Not Using Services ( $N = 227$ )

Variable	Used Services ( $n = 90$ ) $M \pm SD$ or %	Did Not Use Services ( $n = 137$ ) $M \pm SD$ or %	$p$ Value
Predisposing			
Age, years	36.0 $\pm$ 8.4	36.9 $\pm$ 8.7	.436
Race			.469
White	83.3	76.6	
Black	10.0	13.9	
Native American	0.0	2.9	
Asian/Pacific Islander	2.2	1.5	
Other	4.4	5.1	
Latino	12.2	11.7	.902
Education, years	15.3 $\pm$ 1.8	15.1 $\pm$ 2.2	.506
Enabling			
Household income, monthly, \$ <sup>a</sup>	5,100 $\pm$ 2,633	5,027 $\pm$ 2,682	.844
Employment status			.465
Full time	37.8	35.0	
Part time	23.3	17.5	
Homemaker	26.7	36.5	
Unemployed	8.9	9.5	
Disabled	3.3	1.5	
Frustrations	37.8	40.9	.641
Guard/Reserve	53.3	49.6	.586
Social support (12–84)	64.5 $\pm$ 11.7	66.1 $\pm$ 12.8	.343
Spouse need			
Depression (0–27)	7.3 $\pm$ 5.6	5.5 $\pm$ 4.9	.012
Anxiety (0–21)	8.9 $\pm$ 5.0	6.8 $\pm$ 5.1	.003
General health (0–4)	2.2 $\pm$ 1.0	2.5 $\pm$ 1.0	.009
Resilience (0–100)	75.3 $\pm$ 10.3	78.2 $\pm$ 9.8	.034
Service member need			
PTSD symptom severity (17–85)	46.1 $\pm$ 19.9	40.8 $\pm$ 19.8	.053
Resistance to care	45.6	43.8	.794
Care difficulty from injury	62.2	42.3	.003

Note. Social support = MSPSS; Depression = PHQ 9; Anxiety = GAD 7; Resilience = CD RISC; PTSD = PCL P.

<sup>a</sup> $N = 212$ .

and driving to appointments, helping to recover from surgeries, and medication assistance.

### Behavioral Model of Service Use

In examining number of spouse supportive services used (Table 3), neither the predisposing variables model nor any predisposing model variables were statistically significant. The predisposing model explained 1.1% of variance. Adding enabling variables resulted in an additional 1.7% in variance explained and neither the combined model nor any of its variables was statistically significant. Adding spouse need variables resulted in employment becoming a trend, but the model and other variables were not statistically significant. The explained variance in number of spouse supportive services used increased to 9.3%.

With the addition of service member need variables, service member PTSD severity significantly explained spouse service use, and care difficulties due to injuries was a trend to explain spouse service use. Enabling variables also became important: decreased spouse frustration at finding resources became significant and employment continued as a trend to explain spouse service use. The model was statistically significant, with 16.2% of variance explained.

When service members/veterans numbers of services used were examined, results were similar. Spouse need variables were significantly independently related to number

of service member/veteran services used: increased depression ( $R^2 = .043$ ,  $p = .002$ ) and anxiety ( $R^2 = .055$ ,  $p < .001$ ), and decreased general health ( $R^2 = .036$ ,  $p = .004$ ) and resilience ( $R^2 = .036$ ,  $p = .004$ ). However, they were not significant in the model (see Table 4), even though the model was significant with 7.4% explained variance. With the addition of service member need variables, PTSD severity, resistance to care, and injuries causing care difficulties, all significantly explained numbers of services used. The service member/veteran model was statistically significant, with 36.7% of variance explained.

### DISCUSSION

The study provided insight explaining supportive service use by military/veteran spouses. Spouses who used supportive services, compared to those who did not, reported greater depression and anxiety, decreased resilience, and poorer health, as well as more service member PTSD symptoms and more frequently experienced care difficulties caused by injuries.

When examining the behavioral model of service use with predisposing, enabling, and need variables, in the absence of consideration of service member needs, no spouse variables significantly explained number of services used by spouses. With the inclusion of service member

TABLE 3  
Spouse Number of Types of Supportive Services Used Regression Models ( $N = 227$ )

Variable	Stage 1		Stage 2		Stage 3		Stage 4	
	Beta	<i>p</i> Value	Beta	<i>p</i> Value	Beta	<i>p</i> Value	Beta	<i>p</i> Value
Predisposing								
Age	.064	.358	.055	.458	.036	.623	.017	.813
White	.065	.350	.063	.376	.023	.743	.077	.274
Latino	.024	.730	.015	.841	.018	.798	.023	.738
Education	.038	.588	.061	.418	.070	.357	.103	.171
Enabling								
Household income <sup>a</sup>			.047	.543	.018	.819	.028	.718
Employed			.091	.207	.119	.095	.117	.092
Frustrations			.027	.723	.099	.206	.185	.023
Guard/Reserve			.027	.718	.005	.944	.020	.783
Social support			.089	.251	.034	.678	.074	.373
Spouse need								
Depression					.080	.485	.056	.614
Anxiety					.168	.140	.104	.353
General health					.052	.504	.004	.960
Resilience					.095	.252	.093	.248
Service member need								
PTSD symptom severity							.241	.026
Resistance to care							.042	.576
Care difficulty from injury							.159	.062
$R^2$	.011	.699	.027	.771	.093	.101	.162	.003

Note. Social support = MSPSS; Depression = PHQ 9; Anxiety = GAD 7; Resilience = CD RISC; PTSD = PCL P.

<sup>a</sup> $N = 212$ .

TABLE 4  
Service Member/Veteran Number of Types of Supportive Services Used Regression Models ( $N = 227$ )

Variable	Stage 1		Stage 2	
	Beta	<i>p</i> Value	Beta	<i>p</i> Value
Spouse need				
Depression	.010	.924	.054	.547
Anxiety	.151	.150	.025	.781
General health	.104	.149	.012	.850
Resilience	.084	.261	.043	.495
Service member need				
PTSD symptom severity			.484	< .001
Resistance to care			.153	.009
Care difficulty from injury			.251	< .001
$R^2$	.074	.002	.367	< .001

need in the model, decreased spouse frustration finding resources to aid with reintegration and greater PTSD symptoms significantly explained number of services used, and greater care difficulty due to a service member injury and being employed emerged as trends. This spouse model explained 16.2% of variance. Although their individual contributions to the overall model were not significant, spouse depression, anxiety, and resilience were each significantly related to numbers of supportive services used, but variance explained by each was small.

Spouse need and service member need variables were also used to examine number of service member services used. Spouse depression and spouse frustration with finding resources were independently significantly related to service member's number of supportive services, although the amount of variance explained was small. However, in multivariate modeling of number of services used, no spouse need variables were significant, but service member need variables (PTSD symptoms, less resistance to care, and care difficulty) were significant and explained 36.7% of variance. This finding was expected; the unexpected finding was the relationship of service member need to spouse services used.

The study has limitations that may have influenced outcomes. Numbers of individuals using supportive services were not large but were consistent with other studies of military populations (Fikretoglu et al., 2008). The model did not include organization, provider, or environmental variables that measure the context within which utilization occurs (Phillips, Morrison, Andersen, & Aday, 1998), which may be important to military families. Many of the sample were currently Guard and Reserve spouses who are likely to seek care in the community, where resources may not be readily available (Hazle, Wilcox, & Hassan, 2012). Community providers' unfamiliarity with military health concerns (Chretlen & Chretlen, 2013) may discourage supportive service use by military spouses, although civilian services were most used by spouses. Service use data were limited to supportive services and did not include general outpatient or inpatient care, and frequency of each service

used was not counted. In addition, all data for spouses and service members were spouse self-reports. Mental health diagnoses for spouses or service members, which could document an objective or evaluated need variable, were not available.

Although the mechanism of action between spouse and service member need and service use cannot be specified from our data, the variance explained by service member need in spouse use of services suggests that the caregiving role is influential. Although average time back from deployment was 21 months, spouses were still coping with PTSD and care difficulties, and caregiving was a major part of their role. These challenges were not those of expected reintegration concerns, such as renegotiating roles and relearning communication strategies.

Spouse examples of challenges make the caregiving role clear.

He is limited by them [torn rotator cuff, limited hearing, scar tissue around brain, knee surgery, kidney stones] in working conditions. He has lost two jobs because being off work for stones. I had to quit working to care for him during surgery.

PTSD won't allow him to sleep and hallucinations make him think he is back in war. .. He forgets medication or to sleep. He is in bed three to five days a week from head aches. He can't read, write, or see numbers correctly.

I have one more person to look after besides the children.

Research has shown that caregivers have increased morbidity and mortality, and the mechanism of action generally postulated for this decreased well-being has been caregiving stress and its impact on health. Close attention to the mechanisms by which these impacts occur may expand caregiving science to show caregiver health and well-being suffers from parameters such as care recipient need independent of, or in addition to, the caregiver's response to the

need (Trivedi et al., 2012). The influence of service member need variables in explaining number of spouse services used supports this idea. Newer conceptualizations of caregiving suggest that care is not unidirectional and that each individual in a family may provide care to the others (Lingler, Sherwood, Crighton, Song, & Happ, 2008). Thus, for researchers, additional study is needed to expand our understanding of the role that each family member plays in the health of others.

These results make a strong case to ensure that interdependence among family members is considered and integrated into existing military and veteran systems of care, which is not always the case (Green et al., 2013; Hall, Sigford, & Sayer, 2010; MacDermid Wadsworth et al., 2013; Sawyer & Minick, 2012). This reciprocal caregiving, the interdependence of family members, and their influence on one another's health and health care use should be considered in any health care encounter.

Plans of care for the service member/veteran, or for any impaired patient, do not routinely consider the impacts on the caregiver and the family. Excellent care for the patient may lead to negative physical, emotional, economic, or social consequences for the caregiver, as the caregiver must "make sure he takes his medications, get to work on time, do his work, and take care of the bills." In addition to the in-home care required, caregivers discussed the need to go back and forth to the hospital to many appointments. As one caregiver said, "Initially the greatest difficulty was him being ninety miles away in the hospital and the stress of him being injured as well as the possibility of losing my job because I'll be down with him for appointments." Another remarked, "He goes to the VA a lot."

DoD and VA provide information and services to help with reintegration concerns, and these are needed. However, the amount of time since deployment for these participants and their continuing struggles with care difficulties suggest that a large number of family members are filling the caregiver role postdeployment, although they may not necessarily see themselves as caregivers. Different kinds of services targeted to caregiving and sooner in the postdeployment cycle may be necessary. Providing help to caregivers is an often unrecognized obligation and cost of war.

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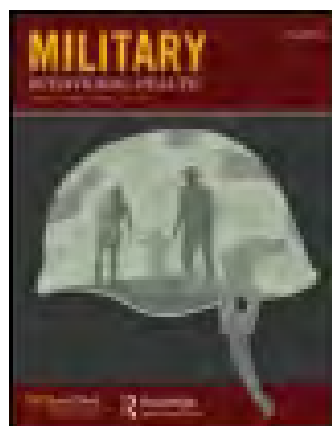
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### Support for Spouses of Postdeployment Service Members

Linda O. Nichols<sup>a</sup>, Jennifer Martindale-Adams<sup>b</sup>, Jeffrey Zuber<sup>b</sup>, Marshall Graney<sup>c</sup>, Robert Burns<sup>d</sup> & Carolyn Clark<sup>e</sup>

<sup>a</sup> Veterans Affairs Medical Center Memphis and Departments of Preventive Medicine and Internal Medicine, University of Tennessee Health Science Center, Memphis, Tennessee

<sup>b</sup> Department of Preventive Medicine, University of Tennessee Health Science Center and Veterans Affairs Medical Center Memphis, Memphis, Tennessee

<sup>c</sup> Veterans Affairs Medical Center Memphis and Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, Tennessee

<sup>d</sup> Geriatrics Group of Memphis and Departments of Preventive Medicine and Internal Medicine, University of Tennessee Health Science Center, Memphis, Tennessee

<sup>e</sup> Veterans Affairs Medical Center Memphis, Memphis, Tennessee

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# Support for Spouses of Postdeployment Service Members

Linda O. Nichols

*Veterans Affairs Medical Center Memphis and Departments of Preventive Medicine and Internal Medicine, University of Tennessee Health Science Center, Memphis, Tennessee*

Jennifer Martindale-Adams and Jeffrey Zuber

*Department of Preventive Medicine, University of Tennessee Health Science Center and Veterans Affairs Medical Center Memphis, Memphis, Tennessee*

Marshall Graney

*Veterans Affairs Medical Center Memphis and Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, Tennessee*

Robert Burns

*Geriatrics Group of Memphis and Departments of Preventive Medicine and Internal Medicine, University of Tennessee Health Science Center, Memphis, Tennessee*

Carolyn Clark

*Veterans Affairs Medical Center Memphis, Memphis, Tennessee*

Spouses/significant others of service members who served in Iraq or Afghanistan ( $n = 228$ ) were randomized into three study arms: telephone support groups, education webinars, and usual care. Telephone support groups and education webinars met 12 times during six months. Outcomes included depression, anxiety symptoms, resilience, personal/family coping, and family communication. Participants in all three study arms improved over time despite dealing with care challenges for an injured service member or not yet being adjusted to the service member's return in some way. All participants attributed benefit to improved self efficacy. Findings suggest multiple avenues can be used to support families postdeployment.

**Keywords:** Telephone support, depression, online education, mixed models, reintegration, postdeployment, military, veterans, families

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Address correspondence to Linda O. Nichols, Veterans Affairs Medical Center Memphis (11 H), 1030 Jefferson Avenue, Memphis, TN 38104. E mail: linda.nichols@va.gov

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Postdeployment, service members from Iraq's Operation Iraqi Freedom (OIF) and Operation New Dawn (OND) and Afghanistan's Operation Enduring Freedom (OEF) report mental health concerns such as depression, anxiety, and post-traumatic stress disorder (PTSD) symptoms. These problems increase postdeployment (Hoge, Auchterlonie, & Milliken, 2006), and multiple deployments further increase the likelihood of acute stress, depression, anxiety, and use of mental health medications (Chretien & Chretien, 2013;



Hazle, Wilcox, & Hassan, 2012). These problems can lead to interpersonal conflict, divorce, separation, or problems getting along with relatives or children (Eaton et al., 2008). For example, service member depression can impede personal relationships and cause emotional and financial stress in the family (Hazle et al., 2012).

Similarly, deployment effects on the military spouse include increased loneliness, anxiety, depression, sleep disorders, adjustment disorders, stress, and family dysfunction (Link & Palinkas, 2013; Mansfield et al., 2010). Although spouse rates are similar to those of service members (Eaton et al., 2008), spouses are more likely to report that stress or emotional problems impact work or other activities (Hoge, Castro, & Eaton, 2006). In addition, spouses who are more anxious have lower levels of social support and worse health (Fields, Nichols, Martindale-Adams, Zuber, & Graney, 2012).

Service member, spouse, and family mental health concerns make reintegration stressful (Blow et al., 2012). However, there are also other risk factors associated with relationship breakdown and difficult postdeployment readjustment. These include younger age, childlessness, increased deployment length, unhelpful behavior by partners, relationship uncertainty, family violence, problems resuming sexual relationships, PTSD, and alcohol misuse (Knobloch & Theiss, 2011; Rowe, Murphy, Wessely, & Fear, 2013).

Postdeployment communication can also cause reintegration difficulty. For example, adaptive deployment behaviors, such as avoiding sensitive topics, may be counterproductive at home (Knobloch & Theiss, 2011). Another reintegration difficulty is renegotiating changed roles and responsibilities (Blow et al., 2012; Faber, Willerton, Clymer, MacDermid, & Weiss, 2008; Segal & Segal, 2006).

Assisting families with reintegration (Booth et al., 2007) includes education about deployment's effects on service member and family, support from others with similar experiences, and practical skills building, including problem solving, communication, stress reduction, and cognitive/mood management. These building blocks of successful caregiver interventions (Belle et al., 2006; Gottman, Gottman, & Atkins, 2011; Schulz et al., 2003) are consistent with health-stress models that explain how individuals cope with stress (Lazarus & Launier, 1978). However, many families do not use available resources (Di Nola, 2008). Work and child care are common barriers to accessing such care (Hoge, Castro, & Eaton, 2006), but barriers can be structural, financial, personal, social, and cultural (Basham, 2012).

Because they are not on base, National Guard/Reserve families may lack resources found on active-duty installations. These families may seek care in the community, so providers need to be trained in military-specific care (Chretien & Chretien, 2013), and resources need to be available, particularly in rural areas (Hazle et al., 2012). However,

community mental health and primary care providers report uncertainty about their ability to provide best care for military families, often not even assessing whether their patients had been in the military (Kilpatrick, Best, Smith, Kudler, & Cornelison-Grant, 2011).

One possible resource for military families to receive services in the community is telephone support groups, which have been shown to work for stressed and/or isolated populations (Nichols, Martindale-Adams, Graney, Zuber, & Burns, 2013; Nichols et al., 2014) and can circumvent obstacles such as lack of local services, access, and travel. OEF/OIF spouses who have participated in telephone support groups have shown significantly improved depression, anxiety, and social support, and spouses report decreased concern about reintegration effects on their social life, family, service member, and themselves. Spouses of service members with injuries causing care difficulties had a stronger intervention response than spouses with no care difficulties, even though they were more burdened (Nichols et al., 2013; Nichols et al., 2014).

Based on these findings, the current study goal was to determine whether spouses/significant others could be helped to cope with concerns after a partner's return from deployment. We hypothesized that telephone support groups, compared to attention control education webinars or usual care, would more effectively improve depression, anxiety, resilience, personal/family coping strategies, and family problem-solving communication, and that education webinars would be more effective than usual care.

## METHODS

### Overview

Spouse READI (Resilience Education and Deployment Information) was a five-year randomized clinical trial, October 2009 to February 2014, funded by the Department of Defense (DoD) Defense Health Program and managed by the U.S. Army Medical Research and Materiel Command (USAMRMC) Military Operational Medicine Research Program. Participants were spouses/significant others of OEF/OIF/OND service members/veterans who were at least one month postdeployment, who had been a spouse throughout the deployment period, and who lived with the service member when not deployed. Recruitment occurred through mailed brochures, online materials, social media, and contact with military bases, Veterans Affairs (VA) facilities, and family readiness programs.

The study was conducted under the oversight of the VA Medical Center (VAMC) Memphis Institutional Review Board (IRB) and USAMRMC Human Research Protection Office. Per IRB instruction, the spouse obtained service member/veteran assent for participation. After assent, a consent form was mailed to the potential participant for an

informed consent call, followed later by baseline data collection. Randomization occurred after baseline data collection.

## Intervention

The telephone support and webinar interventions were grounded in a stress and coping health process model. Individuals evaluate whether environmental stressors pose a threat and whether they have coping capabilities (Lazarus & Launier, 1978). Through didactic presentation, support group and webinar members had opportunity to learn skills directed toward reintegration difficulties. Support group members had skills-building practice and support through interactions with group members. To manage emotional and cognitive responses (Lazarus & Launier, 1978), spouses had opportunities to strengthen psychosocial resources through recognizing and changing negative thoughts and using assertiveness, relaxation techniques, and intrapersonal coping strategies.

*Telephone support groups.* Telephone support groups were designed to have six members and a trained group leader who was an experienced counselor. Groups met twice a month for six months. Groups were prescheduled on three different nights based on spouses' availability. Participants could join another group to allow for schedule changes or missed sessions.

Each participant had a one-on-one introduction call about group logistics and rules and problem-solving basics. Session topics included social support, communicating, emotional intimacy, family roles, commitment, mental health and resilience, asking for help from community and others, navigating the system, strengthening your relationship, taking care of you, and traumatic brain injury (TBI) and PTSD. A workbook provided session materials plus "red flags" for spouses or service members things that may exacerbate problems, add difficulty or distress, and/or indicate a need for referrals (e.g., unsafe behaviors, substance abuse, spouse abuse, depression). At each session, participants were encouraged to make a commitment to try a concrete, topic-related strategy between sessions. A review of the success of these member commitments and strategies to overcome barriers began each subsequent session. Each session then included a brief didactic presentation followed by discussion, coping skills practice, and discussion of new commitments by members. Participants then had an ending one-on-one call including topic review and lessons learned.

Format and structure of the one-hour telephone sessions included strategies of successful caregiving interventions: education, coping skills training and practice (e.g., problem solving, communication), cognitive restructuring (identifying and reshaping negative and destructive thoughts), and support (Belle et al., 2006; Gottman et al., 2011; Schulz et al., 2003). Groups were structured with scripted talking

points but also incorporated participant input and direction of discussion.

*Education webinars (attention control) and usual care.* Twelve half-hour education webinar sessions on the support group topics during six months served as attention control. Webinar session participants received the same workbook as telephone support participants. However, neither interaction/support (i.e., participants listened but did not interact) nor active skills building was included. Sessions were recorded so spouses could watch if they missed a session.

Usual care participants received no contact during the study except for data collection and alert calls (follow-ups for any participant if data collection identified dangers such as suicidal or homicidal ideation, domestic abuse, increased alcohol/drug use, clinical depression, or psychotic symptoms). At study's end, usual care participants were offered a workbook and workshop covering topics targeted to individual needs.

## Quantitative Data

Quantitative data collection from spouses, via telephone by trained and certified research associates, occurred at baseline, 6 and 12 months (full), and 3 and 6 months (outcomes only). No data were directly collected from the service member.

*Outcomes.* Outcomes included depression, anxiety, resilience, personal/family coping, and family problem-solving communication.

The Patient Health Questionnaire (PHQ-9), used to assess depression (Kroenke, Spitzer, & Williams, 2001), has nine items based on the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV), diagnostic criteria, scored from *Not at all* (0) to *Nearly every day* (3), with summed scores ranging from 0 to 27; higher scores indicate greater depression.

The Generalized Anxiety Disorder 7 (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006), used to assess anxiety, is a seven-item symptom checklist. Scoring for each item ranges from *Not at all* (0) to *Nearly every day* (3), for a summed score of 0 to 21; higher scores indicate greater anxiety.

The Connor-Davidson Resilience Scale (CD-RISC) used 25 items to assess past-month resilience, with responses from *Not true at all* (0) to *True nearly all of the time* (4) (Connor & Davidson, 2003). Higher scores indicate greater resilience. The scale has a Cronbach's alpha of 0.89 with an intraclass correlation coefficient of 0.87.

Personal/family coping behaviors were from the 1991 1992 Survey of Army Families II in U.S Army Europe (Durand, Larison, & Rosenberg, 1995; Pittman, Kerpelman, & McFadyen, 2004). Fourteen items measure day-to-day activities management, from household tasks to coping with loneliness. Six items are child care related, and eight relate to personal coping. Each item is rated from *Very*

poorly (1) to *Very well* (5); summed scores are 8 to 40 (personal scale) and 6 to 30 (family scale).

The 10-item Family Problem Solving Communication scale (FPSC) assessed aspects of family communication used to cope with stress and difficulties (McCubbin, Patterson, & Glynn, 1996). Each item is scored from *Completely false* (0) to *Completely true* (3). Summed scores range 0 to 30; higher scores indicate better communication. The FPSC has an alpha of 0.89, test-retest correlation is 0.86, and the scale has good concurrent validity (McCubbin et al., 1996).

*Independent measures.* Independent measures were selected to characterize the sample and to assess factors that affect outcome measures and/or the reintegration process. Demographics included age, gender, race/ethnicity, years married, employment, children, income, education, and service member's age, employment, military branch, rank, years in the military, injuries, and previous deployment information. Based on questions from the Millennium Cohort Study, spouses were also asked how long it had taken them to adjust to the service member's return, how long it had taken the service member to adjust, how long it had taken the relationship to adjust, and how long it had taken the children to adjust. Responses to each question could be *Not adjusted* or the actual time to adjustment in months.

Two questions assessed other sources of support and assistance. Spouses were asked if they had received any training to prepare for the service member's deployment before, during, or after deployment. In addition, spouses were asked if they or their service member had received any type of supportive services in the past six months. If spouses reported service use, they were asked to report all types of services used, including support groups, counseling (individual, couples, family, pastoral), treatment for drug/alcohol use, depression or anxiety psychotropic medication, online education/support, or another supportive service. Spouses were also asked if they were frustrated at finding resources to assist with reintegration.

Health status was assessed with a scale from *Poor* (0) to *Excellent* (4) (Ware et al., 1995). The six-item Quality of Marriage Index (QMI) assessed marital quality (Norton, 1983). Five items (attitudes and behaviors) have responses from *Very strongly disagree* (1) to *Very strongly agree* (7). Overall happiness is rated from *Very unhappy* (1) to *Perfectly happy* (10). Summed scores are 6 to 45; higher scores indicate greater relationship satisfaction. QMI has an alpha coefficient of 0.97 and excellent convergent and discriminant validity (Heyman, Sayers, & Bellack, 1994).

Personal stress was assessed with items from the Social Readjustment Rating Scale (SRRS), a list of 43 stressful life events that can contribute to illness (Holmes & Rahe, 1967). Twelve events that were apt for this age cohort (e.g.,

pregnancy or change in financial state) were measured. Occurrence in the past six months is scored as *No* (0) or *Yes* (1). Each event has points assigned according to how stressful it is. Points for all events present are summed for a score from 0 to 437; higher scores indicate greater stress.

Spouse perceptions of past-month PTSD symptoms of the service member/veteran are assessed with the 17-item Partner PTSD Checklist (PCL-P) (Gallagher, Riggs, Byrne, & Weathers, 1998) that correlates ( $r = 0.71$ ) with the PTSD Checklist (PCL) (Weathers, Litz, Herman, Huska, & Keane, 1993). PCL-P items are scored from *Not at all* (1) to *Extremely* (5), with a summed score of 17 to 85; higher scores indicate more symptoms or greater severity.

The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) assesses social support with 12 questions focusing on family, friend, and significant other support. Items are scored *Very strongly disagree* (1) to *Very strongly agree* (7) and summed to 12 to 84. Higher scores indicate greater support. The measure has a Cronbach's alpha of 0.91 (Dahlem, Zimet, & Walker, 1991).

*Quantitative data analysis.* The main quantitative data analysis strategy was intention to treat, with participants analyzed according to randomization assignments. Baseline characteristics were compared between participants in each arm using chi-squared tests or analysis of variance (ANOVA), as appropriate. Outcomes were treated as independent of the others. Randomized arms were compared using repeated-measures mixed linear models to estimate group by time interaction. Because mixed linear model analysis accommodates missing data without loss of subjects, no imputation strategy was necessary. Linear regression was used to analyze relationship between two continuous variables. Secondary analysis of outcomes within subgroups used these same strategies.  $P$  values  $\leq .05$  were considered statistically significant, and those between .05 and .10 to document trends approaching statistical significance. The study was designed to provide statistical power of 0.80 to document as statistically significant a true population difference in intervention effect equal to at least 0.25  $SD$  of a primary outcome variable.

## Qualitative Data

To gather information about benefit, at the end of the 12-month interview, each participant was asked if he or she had benefited from the study. If yes, the participant was asked to elaborate. Using transcriptions of these comments, one author sorted the descriptions, concepts, and central ideas into potential themes that occurred repeatedly and linked themes to verbatim quotes (Bernard, 2006). Two reviewers combined these individual themes into one set of themes. To ensure that quotes were accurately assigned to themes, an independent reliability test was conducted (Ryan et al., 2009). Using the codebook that described the

themes, a separate researcher matched caregivers' quotes with themes so that a kappa reliability statistic could be computed (Cohen, 1968). This kappa was 0.95, indicating high agreement among researchers on themes (Landis & Koch, 1977).

## RESULTS

### Participants

At baseline there were no statistically significant differences among the three randomization arms. On average, participants were women, in their mid-30s, married about nine years, and with about two children (Table 1). About 12% were African American or Latina; the rest were Caucasian. They had about three years of college, and more than half were employed. Clinically, spouses reported health between good and very good, and relatively low depression and anxiety.

On average, spouses reported that it had taken 3.4 months to adjust to the service member's return. However, 42.4% reported not being adjusted. In addition, they reported that time for the relationship to adjust had been 4.3 months, although 46.8% felt their relationship had not adjusted to the service member's return.

Before enrollment in the study, 42.7% of spouses had had training related to the service member's deployment. Almost half of training events (98/212; 46.2%) occurred before deployment, with only 25.5% occurring postdeployment. The three major sources of training were Yellow Ribbon events (37.6% of all training), Family Readiness Group training (32.1%), and general briefings/meetings (15%). Other types of training or events (retreats, support groups), such as Military One Source, were all less than 10% of training.

For supportive services, at baseline 39.6% of spouses were using supportive services with counseling the most used service. Although 37.8% of spouses using services reported frustration at finding resources at baseline, from baseline to study end there was a significant decrease in the number of spouses expressing frustration ( $p \leq .001$ ).

Service members/veterans, on average, were in their late 30s, and 75% were employed (Table 2). Few were junior enlisted; almost two-thirds were noncommissioned officers. Service members had served in the military 14 years, and 44.5% were currently Guard or Reserve. Consistent with their military years, they had 3.6 total deployments, with 2.1 OEF/OIF/OND deployments. The most recent deployment had been almost one year long. Almost two-thirds had been injured, and 43.6% met criteria for PTSD based on spouse report. They had been back almost two years. By spouse report, service members took 4.5 months to adjust to return, although 46.8% had not adjusted.

### Dosage

Among support arm participants, 40.8% participated in six or more of twelve sessions; 21% participated in none. Among education arm participants, 34.2% participated in six or more sessions; 30.3% participated in none. Discontinuation and lost to follow-up included 24 education arm participants, 10 support arm participants, and 4 in usual care (Figure 1). Total sessions missed might have been more if not for support arm ability to move among groups: 29 (38.2%) of the 75 participants attended another group at least once.

### Outcomes

#### *Primary analysis*

During 12 months there was significant improvement over time for participants in all arms for all outcomes except resilience (Table 3). There were no significant randomization group effects or group by time interaction effects.

#### *Secondary analysis*

We also analyzed differences in outcomes by postdeployment stressors of adjustment since service member's return, and difficulty providing care after injury, stressful life events, which are frequently related to physical and psychological problems (Dohrenwend, 2006), and dosage. Here, also, participants tended to improve.

*Adjustment since service member's return.* Participants who reported that they, the service member, and the relationship had adjusted ( $n = 83$ ), and those who reported that any of these three areas of adjustment had not been accomplished ( $n = 121$ ) since return, were separately analyzed. During the course of the study, for those who had not adjusted there was significant improvement over time for anxiety ( $p < .001$ ), depression ( $p = .001$ ), and personal coping ( $p < .001$ ), and a trend for family coping ( $p = .058$ ), but no randomization group or group by time interaction effects. During the course of the study, for those who were adjusted, there was a significant improvement over time for improved personal coping ( $p = .008$ ), but no randomization group or group by time interaction effects.

Little outcome variance was explained by time since service member's return from deployment. Only family coping was statistically significant ( $n = 120$ ,  $R^2 = .035$ ,  $p = .040$ ), with spouses of recently returned service members doing better than spouses of those who returned earlier.

*Care difficulties.* Participants who were in relationships with injured service members with care difficulties were analyzed separately from those not experiencing care difficulties. For spouses experiencing care difficulties ( $n = 114$ ) there was significant improvement over time for improved anxiety ( $p = .002$ ), personal coping ( $p = .001$ ), and family

TABLE 1  
Baseline Characteristics of READ Spouses

Variable	Total (N = 227) M $\pm$ SD or %	Support (n = 76) M $\pm$ SD or %	Webinar (n = 76) M $\pm$ SD or %	Usual Care (n = 75) M $\pm$ SD or %	p Value
Demographic					
Female	98.7	97.4	98.7	100.0	.775
Age, years	36.5 $\pm$ 8.6	36.4 $\pm$ 8.6	38.0 $\pm$ 8.3	35.1 $\pm$ 8.7	.123
Years married	9.0 $\pm$ 6.9	8.6 $\pm$ 7.4	8.7 $\pm$ 6.1	9.7 $\pm$ 7.0	.525
Children, number	1.6 $\pm$ 1.3	1.5 $\pm$ 0.2	1.3 $\pm$ 0.2	1.2 $\pm$ 0.1	.947
Race					.160
Caucasian	79.3	80.3	78.9	78.7	
African-American	12.3	13.2	17.1	6.7	
Native American	1.8	1.3	0.0	4.0	
Asian/Pacific Islander	1.8	0.0	1.3	4.0	
Other	4.8	5.3	2.6	6.7	
Ethnicity, Latino	11.9	13.2	9.2	13.3	.675
Education, years	15.2 $\pm$ 2.1	15.1 $\pm$ 2.1	15.3 $\pm$ 2.3	15.1 $\pm$ 1.7	.769
Employed, full time or part time	55.9	46.1	64.5	57.3	.070
Household income, monthly, US\$	5056 $\pm$ 2657	5132 $\pm$ 2382	5277 $\pm$ 2852	4759 $\pm$ 2741	.497
Had military service	16.3	11.8	18.4	18.7	.435
Deployment					
Months for spouse to adjust to service member's return	3.4 $\pm$ 5.9	3.0 $\pm$ 3.3	4.2 $\pm$ 8.4	2.8 $\pm$ 4.1	.563
Spouse not yet adjusted to service member's return	42.4	43.3	36.8	47.1	.470
Months for relationship to adjust to service member's return	4.3 $\pm$ 7.2	3.3 $\pm$ 5.1	6.7 $\pm$ 10.3	2.8 $\pm$ 4.4	.069
Relationship not yet adjusted to service member's return	46.8	35.8	48.5	55.9	.061
Months for children to adjust to service member's return	3.6 $\pm$ 4.7	3.0 $\pm$ 3.8	3.4 $\pm$ 4.2	4.4 $\pm$ 6.0	.515
Children not yet adjusted to service member's return	33.3	31.0	25.6	42.2	.253
Clinical					
General health (0–4)	2.4 $\pm$ 1.0	2.3 $\pm$ 1.1	2.5 $\pm$ 0.8	2.4 $\pm$ 1.1	.340
Depression (0–27)	6.2 $\pm$ 5.3	6.6 $\pm$ 5.8	5.8 $\pm$ 5.2	6.4 $\pm$ 4.7	.648
Anxiety (0–21)	7.6 $\pm$ 5.1	7.9 $\pm$ 5.5	7.1 $\pm$ 5.1	7.9 $\pm$ 4.8	.537
Quality Marriage Index (6–45)	33.9 $\pm$ 9.0	33.6 $\pm$ 10.3	33.7 $\pm$ 8.2	34.5 $\pm$ 8.4	.777
Social support (12–84)	65.5 $\pm$ 12.4	65.5 $\pm$ 13.8	66.6 $\pm$ 10.2	64.5 $\pm$ 12.8	.583
Family communication (0–30)	20.9 $\pm$ 5.6	20.1 $\pm$ 6.7	21.1 $\pm$ 4.9	21.7 $\pm$ 5.1	.235
Personal coping (8–40)	32.5 $\pm$ 4.7	32.3 $\pm$ 5.2	32.7 $\pm$ 4.6	32.4 $\pm$ 4.4	.870
Family coping (6–30) <sup>a</sup>	26.3 $\pm$ 3.2	26.9 $\pm$ 2.8	25.8 $\pm$ 3.7	26.3 $\pm$ 2.9	.175
Social readjustment (0–437)	149.2 $\pm$ 79.4	154.9 $\pm$ 81.3	143.4 $\pm$ 77.0	149.4 $\pm$ 80.6	.676
Resilience (0–100)	77.0 $\pm$ 10.1	75.8 $\pm$ 10.0	78.8 $\pm$ 10.6	76.4 $\pm$ 9.5	.163

Note: Depression = PHQ-9; anxiety = GAD-7; social support = MSPSS; family communication = FPSC; personal/family coping = questions from the 1991–92 Survey of Army Families II in USAR-EUR; Social readjustment = SRRS; Resilience = CD-RISC.

<sup>a</sup>N = 156 and n = 48, 52, 56 for Support, Webinar, and Usual Care respectively. This scale is only assessed with participants who have children living in the home.

TABLE 2  
Baseline Characteristics of READ Service Members

Variable	Total (N = 227) M ±SD or %	Support (n = 76) M ±SD or %	Webinar (n = 76) M ±SD or %	Usual Care (n = 75) M ±SD or %	p Value
Demographic					
Age, years	38.0 ±7.9	37.8 ±7.6	38.8 ±7.3	37.2 ±8.7	472
Employed, full time or part time	75.3	78.9	76.3	70.7	484
Branch of service					468
Army	29.5	23.7	30.3	34.7	
Army Guard/Reserve	42.7	50.0	39.5	38.7	
Navy	7.5	7.9	5.3	9.3	
Naval Reserve	4.0	3.9	6.6	1.3	
Air Force	6.2	3.9	6.6	8.0	
Air Guard/Reserve	3.1	1.3	5.3	2.7	
Marines	5.7	5.3	6.6	5.3	
Marine Reserve	1.3	3.9	0.0	0.0	
Class					723
Noncommissioned officer	42.7	42.5	45.2	48.5	
Commissioned officer	20.3	20.5	20.5	23.5	
Senior noncommissioned officer	20.7	23.3	26.0	16.2	
Junior enlisted	7.5	9.6	4.1	10.3	
Warrant officer	3.1	4.1	4.1	1.5	
Status					536
Serving in Guard or Reserve	44.5	52.6	44.7	36.0	
Serving in regular military	30.8	28.9	27.6	36.0	
Retired	11.5	6.6	11.8	16.0	
Discharged	10.1	9.2	11.8	9.3	
Other	3.1	2.6	3.9	2.7	
Years in military	14.0 ±7.8	14.2 ±7.1	14.0 ±7.7	13.9 ±8.6	977
Deployment					
Deployments ever, number	3.6 ±3.0	3.5 ±2.7	3.6 ±3.3	3.7 ±3.0	956
OEF/OIF/OND deployments, number	2.1 ±1.3	2.2 ±1.6	1.9 ±1.0	2.1 ±1.3	421
Months since return	21.8 ±22.6	20.0 ±19.5	23.3 ±24.0	22.0 ±24.0	653
Months of last deployment	11.1 ±4.7	12.0 ±6.1	10.2 ±4.1	10.9 ±3.5	056
Injured	62.1	63.2	59.2	64.0	810
Months for service member to adjust to return	4.5 ±6.5	3.9 ±3.9	6.1 ±9.0	3.4 ±5.0	190
Service member not yet adjusted to return	46.8	43.3	45.6	51.5	616
PTSD severity (17–85) <sup>a</sup>	42.9 ±20.0	43.1 ±20.2	40.5 ±20.1	45.1 ±19.6	361
Met criteria for PTSD diagnosis <sup>a</sup>	43.6	43.4	38.2	49.3	383

Note: OEF = Operation Enduring Freedom (Afghanistan); OIF = Operation Iraqi Freedom (Iraq); OND = Operation New Dawn (Iraq); PTSD = post-traumatic stress disorder.  
<sup>a</sup>Assessed with the Partner PTSD Checklist (PCL-P).

TABLE 3  
Mixed Model Analysis of Outcome Variables

Variable	Baseline $M \pm SD$	6 Months $M \pm SD$	12 Months $M \pm SD$	Group $p$ Value <sup>a</sup>	Time $p$ Value <sup>a</sup>	Group by Time $p$ Value <sup>a</sup>
Anxiety (0–21)				.340	<.001	.674
Support	7.9 $\pm$ 5.5	5.5 $\pm$ 4.0	6.0 $\pm$ 4.8			
Webinar	7.1 $\pm$ 5.1	5.2 $\pm$ 4.4	6.1 $\pm$ 4.9			
Usual care	7.9 $\pm$ 4.8	6.2 $\pm$ 4.4	5.5 $\pm$ 4.8			
Depression (0–27)				.488	<.001	.544
Support	6.6 $\pm$ 5.8	4.5 $\pm$ 4.6	4.8 $\pm$ 5.1			
Webinar	5.8 $\pm$ 5.2	4.4 $\pm$ 4.8	5.3 $\pm$ 4.8			
Usual care	6.4 $\pm$ 4.7	5.3 $\pm$ 4.1	5.0 $\pm$ 4.7			
Resilience (0–100)				.675	.588	.242
Support	75.8 $\pm$ 10.0	78.1 $\pm$ 12.4	78.1 $\pm$ 11.0			
Webinar	78.8 $\pm$ 10.6	77.9 $\pm$ 13.0	76.3 $\pm$ 12.5			
Usual care	76.4 $\pm$ 9.5	77.7 $\pm$ 10.7	78.0 $\pm$ 10.2			
Family communication (0–30)				.766	.030	.567
Support	20.1 $\pm$ 6.7	22.0 $\pm$ 5.8	21.4 $\pm$ 5.9			
Webinar	21.1 $\pm$ 4.9	22.3 $\pm$ 5.9	21.3 $\pm$ 6.4			
Usual care	21.7 $\pm$ 5.1	21.9 $\pm$ 6.4	22.0 $\pm$ 6.2			
Personal coping (8–40)				.775	<.001	.667
Support	32.3 $\pm$ 5.2	33.3 $\pm$ 5.2	34.0 $\pm$ 4.7			
Webinar	32.7 $\pm$ 4.6	33.5 $\pm$ 4.9	33.2 $\pm$ 4.1			
Usual care	32.4 $\pm$ 4.4	33.7 $\pm$ 4.3	34.0 $\pm$ 4.3			
Family coping <sup>b</sup> $N$ (6–30)				.493	.012	.353
Support	26.9 $\pm$ 2.8	27.1 $\pm$ 3.6	27.3 $\pm$ 3.0			
Webinar	25.8 $\pm$ 3.7	26.4 $\pm$ 3.7	26.0 $\pm$ 3.4			
Usual care	26.3 $\pm$ 2.9	26.6 $\pm$ 3.9	27.1 $\pm$ 3.0			

Note. Anxiety = GAD 7; Depression = PHQ 9; Resilience = CD RISC; Family communication = FPSC; Personal/family coping = questions from the 1991–92 Survey of Army Families II in USAR EUR.

<sup>a</sup>Mixed model analysis also included measurements at three months and nine months.

<sup>b</sup> $N$  = 156 and  $n$  = 48, 52, 56 for support, webinar, and usual care respectively. This scale is assessed only with participants who have children living in the home.

coping ( $p$  = .019), but no randomization group effect or group by time interaction effect for any outcome. For those without care difficulties ( $n$  = 113) there was significant improvement over time for anxiety ( $p$  < .001), depression ( $p$  < .001), and personal coping ( $p$  < .001), and randomization group effects for anxiety ( $p$  = .001) and depression ( $p$  < .001), but no significant group by time interaction effects.

**Stressful life events.** Presence of stressful life events explained little variance in outcomes. Statistically significant variance explained was found for anxiety ( $n$  = 183,  $R^2$  = .060,  $p$  = .012), depression ( $n$  = 182,  $R^2$  = .088,  $p$  = .001), resilience ( $n$  = 181,  $R^2$  = .023,  $p$  = .041), and personal coping ( $n$  = 185,  $R^2$  = .115,  $p$  < .001), and a trend was found for family coping ( $n$  = 118,  $R^2$  = .065,  $p$  = .053).

**Dosage.** When support arm ( $n$  = 31) and education arm ( $n$  = 26) participants who had six sessions or more and usual care arm participants ( $n$  = 75) were compared, there were significant time improvements for anxiety ( $p$  < .001), depression ( $p$  = .004), and personal coping ( $p$  < .001), but no group or group by time interaction effects for any outcome. When comparing *only* support and education participants who had at least six sessions, there were group by time interaction effect trends for improved resilience ( $p$  = .075) and family coping ( $p$  = .052), and significant

improvement over time for anxiety ( $p$  = .002), personal coping ( $p$  = .014), and a trend over time for improved depression ( $p$  = .053).

### Participant Benefit

Participant themes about benefit (Table 4) for each randomization arm are shown in Table 4. For those participants who responded to the question (those who completed the 12-month interview), 87.9% of support participants reported benefit, 86.3% of education participants reported benefit, and 75.0% of usual care participants reported benefit.

**Support.** For support participants, connecting with others was important. As one participant noted: “It was comforting to have the opportunity to share in a group where everyone had similar difficulties and truly understood. It was also good to be able to share hope with others who felt hopeless.” Guard/Reserve spouses and those who did not have military experience were surprised to realize how similar experiences were: “Interesting to hear that people who do live near a base or are active duty face many of the same problems.”

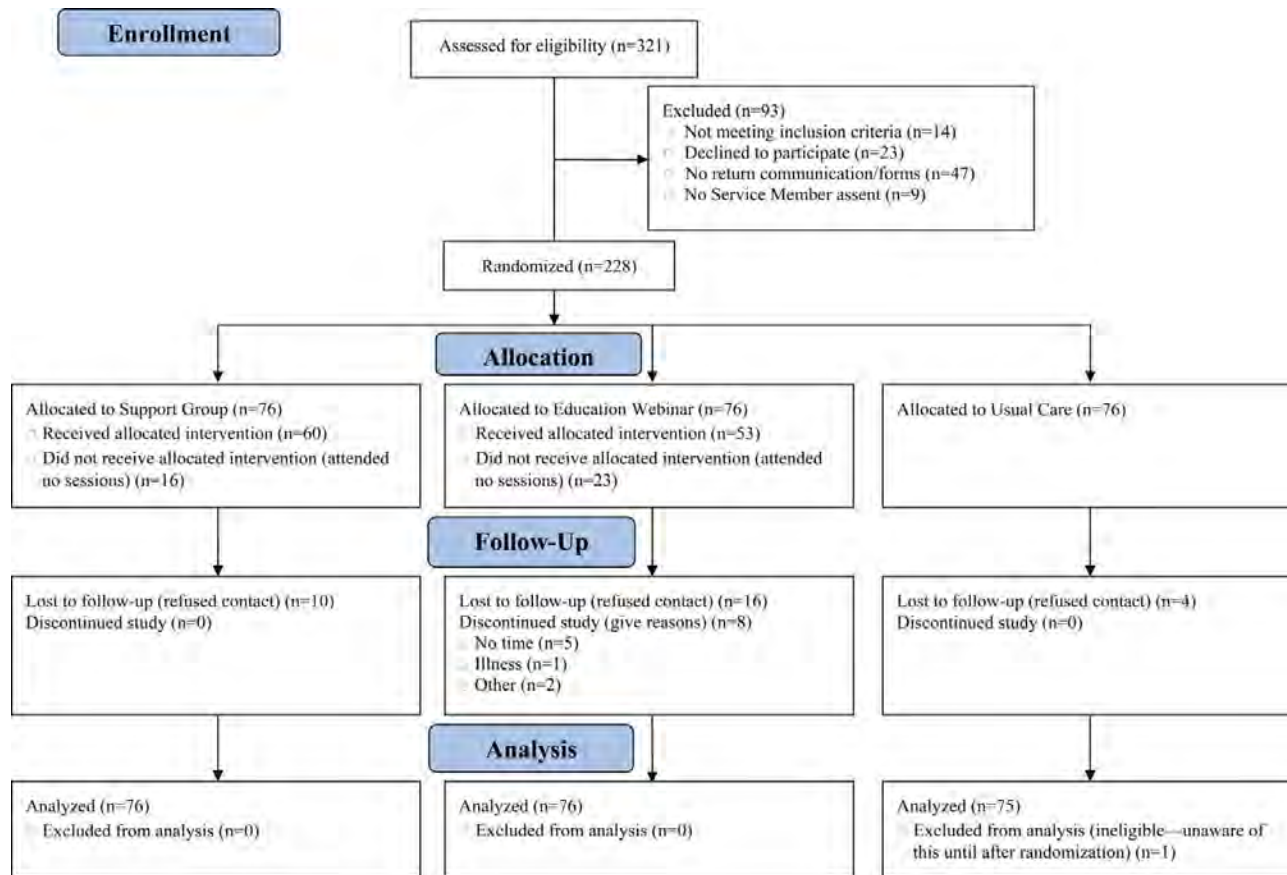


FIGURE 1 Sampling and flow of participants through READI.

Self-efficacy was important, including skills building in self-care, problem solving, stress reduction, self-reflection,

TABLE 4  
Project Benefit Themes by Randomization Arm

Theme	n (%) <sup>a</sup>
Support	
Connecting with others	33 (34.3)
Self efficacy	22 (22.9)
Great resources/workbook/wonderful staff	22 (22.9)
Improved relationship	8 (8.3)
Gap in services	6 (6.3)
Someone cares	5 (5.2)
Webinar	
Self efficacy	29 (38.7)
Great resources/workbook/wonderful staff	23 (30.7)
Improved relationship	9 (12.0)
Connecting with others	8 (10.7)
Someone cares	6 (8.0)
Usual care	
Self efficacy	46 (73.0)
Someone cares	10 (15.9)
Improved relationship	7 (11.1)

<sup>a</sup>Percentages are calculated from number of responses for each randomization arm.

new perspectives, and increased confidence: “A lot of times you forget that you can give so much you have nothing to give, so it brought back a renewed sense . . . to work on having a goal, to think about me, and that I matter.” One critical area of self-efficacy was using skills to work on relationships: “I realized that my husband needs me more than I realized and more than he realized it. I stopped thinking so much about myself and more about him.” Learning skills were tied into participants’ appreciation of the resources and workbook and their appreciation that someone cared about them: “It’s just reassuring to know that people are still out there fighting for military families.”

**Education.** Education participants’ benefits were similar. The most mentioned was self-efficacy, including self-reflection, a new perspective, and learning skills: “It really got me to think about when my husband’s emotions would go from one side to the other . . . helped me to zero in on that and not take it personally and deal with what is an issue and what is a nonissue no matter how he is reacting.” Related to learning and self-efficacy was improved relationships: “This program helped my husband and me to openly discuss issues that, of course, led to more communication and able to focus on issues that were identified.”



Tied into these benefits were resources, including the workbook and webinars, and appreciation that someone cares:

The materials that were provided offered some good information regarding the issues that we as a military family deal with, especially with regards to multiple deployments and the adjustments that go along with that.

I'm really thankful for people like you who take the time to do this.

Although education participants could not interact within their group, some voiced a sense of connecting with others: "So listening in on the calls and . . . knowing that there's other spouses that are listening at the same time really benefited me personally."

*Usual care.* Usual care participants emphasized self-efficacy and self-reflection. Specifically, participants said assessment battery questions prompted them to think about and modify behavior, including improving their relationship with the service member:

I looked at some of the questions that you asked about communicating with my spouse and I tried to do that more . . . and it has helped a lot.

It made me look at certain things that I wouldn't have made a connection about.

Usual care participants also mentioned that someone cared: "Even though I was just in the control group and having these interviews, it let me know that somebody was listening and having a voice has helped me emotionally."

## DISCUSSION

In this study of telephone support and webinar education for spouses coping with service member reintegration, we hypothesized that participants would improve. This was the case, although the support arm had no greater improvement than the education arm. We did not hypothesize that usual care participants would improve. However, there were significant improvements over time for participants in all arms and for all outcomes except resilience. These improvements occurred for participants who were dealing with challenges caring for an injured service member, who experienced more serious life events, who reported not yet being adjusted to the service member's return in some way, and regardless of time since deployment return.

The amount of benefit over time for participants in all study arms was unexpected because the design and content of telephone support and education webinars could have provided additional benefit not available in usual care. The telephone support intervention was based on a stress-health process model and was multicomponent with education,

skills building, and support. It was structured to include information on safety, self-care/health and emotional well-being, social support, and problem behaviors/caregiver skills. Through discussion and commitments, it was targeted to the needs of the caregiving dyads who participated. Multicomponent interventions with emphasis on risk areas targeted to individual concerns have been shown to be effective for caregivers (Belle et al., 2006; Gottman et al., 2011; Portland, Kansagara, Goy, & Freeman, 2010; Schulz et al., 2003).

Explanation of participants' improvement in all three randomization arms can be found in their comments about benefit. Self-reflection and self-efficacy were important themes for these participants. Support group participants attributed benefit to self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook. Education participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building techniques, or support of others, usual care participants used what they had and highlighted how the assessment battery made them question and modify thoughts and behaviors.

The phenomenon of assessment battery as a source of education, normalization, and validation is known, with 82% of usual care group dementia caregivers also reporting these benefits (Nichols et al., 2012). However, usual care participants' emphasis on internalizing information in the questions, and modifying actions, was surprising: "Every time I give my answers, it made me think how's everything going, so it helped me to push a little bit more. When you asked me a question, I realized what the status I am in that particular part of my life and in my family."

In addition to perceived benefit, other factors may help explain why all participants improved. Nonspecific factors such as attention or positive regard by staff influence control group improvement (Beal, Stuijbergen, Volker, & Becker, 2009; Jensen, Weersing, Hoagwood, & Goldman, 2005; Nichols et al., 2012), and these benefits were mentioned, although they were not the most frequent benefits mentioned.

Other researchers have postulated time since deployment as a factor in improvement for service member and family distress, with mental health and reintegration difficulties improving on their own with greater time from combat and deployment. However, our results did not support this finding. Although participants in all groups improved with time, time since service member return was not significantly correlated with improvement in spouse outcomes. Also, 42.4% of spouses had not adjusted to the service member's return and almost half (46.8%) believed their relationship had not adjusted, although average time since deployment return was 21.8 months and median time since deployment return was 13 months, with the range of time since deployment being 1 to 120 months.

Despite their lack of adjustment, or perhaps because of it, participants had accessed services before enrolling in

this study. Almost half (42.7%) had been in some sort of training related to deployment and reintegration and more than one-third (39.6%) had accessed supportive services such as counseling. Despite this, 37.8% of those using services were frustrated at finding resources at baseline; this number significantly decreased during the course of the study. This finding supports the importance of resources as a study benefit theme articulated by support and education participants. It may also suggest that previous resources have not met participants' needs, perhaps because they did not come when participants needed the information.

Several limitations may have influenced these findings. One was that distressed spouses would benefit more from the intervention (Nichols et al., 2013). Spouses were not screened for distress at study entry, and this may have been a limitation because they did not exhibit high levels of anxiety or depression or low levels of resilience at baseline. In an attempt to determine if the most stressed had more benefit from the intervention, spouses who had more stressful life events, or were caring for a service member whose injuries caused care difficulties, were examined by randomization arm. However, these spouses also improved across all three arms during the study.

Another limitation may have been the percentage of participants who discontinued (3.5%) or were lost to follow-up (13.2%). Coupled with this loss were individuals who did not fully participate, with less than half of support arm participants attending at least six sessions. Busy participant lives is a factor that contributes to lower participation, and our data reflect this. The fact that less than half of participants had attended training or used services before the study began suggests that low participation is likely to be a factor in any service offered no matter how needed. This is not an isolated phenomenon or one unique to military families. Although the extent of nonadherence to behavioral interventions is not known, the prevalence of nonadherence to physician medical recommendations has been estimated between 24% (DiMatteo, 2004b) and 50% (Sabaté, 2003), and the economic impact of medical nonadherence in the United States was as high as \$300 billion a decade ago (DiMatteo, 2004b). Adherence to medical regimes is correlated with family cohesiveness and practical, emotional, and functional social support (DiMatteo, 2004a), which these spouses did not necessarily have.

Increasing adherence to interventions must be tailored to the specific needs of military families. Spouse comments from support and education arm participants in their project evaluations suggest several strategies for improving adherence in future interventions. Although every effort was made to have sessions at convenient times in the evening and during the day and to offer multiple options of the same session, spouses had difficulty making time to attend.

Problem was time I didn't have a way to be on calls at night.

Difficulty only from time element. I work and it was some times hard to be on session call.

Support group participants wanted closed groups with the same participants each time to allow a cohesive group to develop.

The open enrollment to group ... too many comings and goings. This made it confusing.  
Didn't feel like a support group since different people at different points on the calls.

And finally, as one education participant said: "Interactive would be better."

This study has clinical implications, although it did not show decisively that one intervention provided superior benefit. Providing spouses/significant others with postdeployment resources and education, access to skills building, and peer support or caring professionals increased self-efficacy and ability to manage concerns and improved spousal relationship. Spouses reported improved anxiety, depression, personal and family coping, communication, and perceived benefit. Our results show that these factors cut across all types of spouses, providing benefit to distressed individuals who are facing challenges brought on by deployment and service member injury. For patients, these findings are important because providing education and mental health resources to families can reduce caregiver burden, which positively affects patient health (Bernhardt, 2009; Carlson et al., 2012; Monson, Taft, & Fredman, 2009).

Our findings suggest that multiple avenues can be used to support military families postdeployment, depending on the capacity and staffing of the military, veteran, or community organization providing service. Telephone or in-person support groups, prerecorded education webinars with the capability of discussion among participants, or webinars that could be watched when convenient for participants followed by monitored chat rooms or scheduled discussions are all options that organizations could provide. The important factor is being there with help: "Because even though it's something that they volunteer for [being in the military], it's something so unique that I don't feel like there's enough resources out there for military families." As one of the spouses in the education arm said: "I would have ridden these last few months out in rougher waters if I hadn't gone through it."

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